

## AMARANTHUS



*Amaranthus* spp.

### The many uses of *Amaranthus* spp.

High in protein and calcium, *Amaranthus* is used as a food crop by the Aztec Indians of Mexico, as a spinach substitute in Australia and as a vegetable in China. The seeds can be boiled into a hot cereal. The young shoots make a very tasty pot herb or in salads. Other uses include the ash of the whole plant used as snuff, sometimes alone and sometimes with tobacco (in Swaziland). A red dye made from the plant – whose name comes from the Greek “amarantos”, which means “unfading”, a reference to the persisting colour of certain amaranth flowers – is used to colour food and medicine. A green and yellow dye can be made from the whole plant.

Found in abundance across parts of the Americas, Africa, the Pacific Islands and Asia, *Amaranthus* spp. has anti-inflammatory, astringent, blood purifying, laxative and diuretic qualities. *Amaranthus* is also known to improve digestion and promote appetite. However, it is most famous as a herb that stops bleeding. (Source: D.B. Leonard. 2008. *Special report: Amaranth*)

**FOR MORE INFORMATION, PLEASE CONTACT:**  
David Bruce Leonard, Medicine at your Feet,  
7921 Sterling Creek Road, Jacksonville,  
Oregon 97530-8930, United States of America.  
E-mail: [herbnerd@davidbruceleonard.com](mailto:herbnerd@davidbruceleonard.com);  
[www.medicineatyourfeet.com/](http://www.medicineatyourfeet.com/) or  
[www.davidbruceleonard.com](http://www.davidbruceleonard.com)

## ARGAN (ARGANIA SPINOSA)

### La gestion et le développement de l'arganier au Maroc

L'arganier est une essence spécifiquement marocaine, à affinités tropicales, unique espèce dans son genre. L'arganier se contente d'une tranche pluviométrique qui peut baisser jusqu'à 120 mm par an, et supporte des températures élevées pouvant atteindre 50 °C. L'isotherme 3°8 limite son extension en altitude. Cette espèce couvre actuellement plus de 700.000 ha et représente environ 17 pour cent de la superficie forestière nationale. L'espace à arganier s'étale essentiellement sur le territoire des provinces d'Essaouira.

L'arganeraie constitue un véritable pôle d'attraction, la population de la région est passée de près d'un million d'habitants en 1960 à plus de 2,5 millions d'habitants en 2004 dont 55 pour cent en milieu rural, soit un taux d'accroissement de 2,2 pour cent. L'initiation de vastes programmes de régénération de l'arganier pourrait être un important moyen de stabilisation de la population et de lutte contre l'exode rural.

### L'importance de l'arganier aux niveaux national et international

L'arganier constitue la troisième ressource forestière marocaine, après l'alfa et le chêne vert, sensiblement à égalité avec le thuya. L'arganier est, en effet «un arbre à multi-usages», chaque partie ou produit de l'arbre est utilisable et représente une source de revenus et de nourriture. Cet arbre a des propriétés écologiques et physiologiques; il est très rustique et résistant à l'aridité, mais il est également doté d'une grande variabilité génétique telle qu'il est pratiquement le seul adapté aux régions arides et semi-arides où il pousse. Dans ces zones, l'arganier est pratiquement irremplaçable dans la conservation des sols et des pâturages et pour la lutte contre l'érosion et la désertification. L'arganier joue un important rôle dans la fertilisation des sols et fournit l'essentiel de l'agriculture d'exportation marocaine dans sa zone.

En quelques années, on a assisté à une mutation complète de la filière production-commercialisation de l'huile d'argan. Ce produit traditionnel, naguère peu connu en dehors du Maroc, est aujourd'hui reconnu en Amérique du Nord, en Europe et jusqu'au Japon où il est considéré comme une huile de luxe. Alors que cette huile ne faisait pas partie de la nomenclature des douanes (ni marocaines ni étrangères) n'étant pas

répertoriée au Codex alimentarius, il existe aujourd'hui une norme marocaine sur l'huile d'argan et ce produit a fait l'objet en 2002 d'une note de l'Agence française de sécurité sanitaire des aliments (AFSSA) validant son utilisation comme huile alimentaire. Des travaux sont en cours au Maroc pour mettre en place un label de qualité de type Appellation d'Origine Contrôlée (AOC).

### La production de l'huile et de ses dérivés

L'huile extraite de l'amande (fruit de l'arganier) est non seulement comestible et d'un goût agréable, mais elle possède des propriétés diététiques très intéressantes étant constituée à 80 pour cent d'acides gras insaturés (dont une bonne proportion d'acide linoléique).

Ces qualités diététiques en font une huile très recherchée, vendue nettement plus chère que l'huile d'olive, en raison notamment de sa rareté et des nombreuses heures de travail nécessaires à sa production. En effet, celle-ci est entièrement manuelle depuis le concassage des fruits, le grillage et le broyage des amandes, jusqu'au malaxage de la pâte pour en extraire l'huile.

La production fruitière (noix d'argan) varie en fonction de l'âge et de la densité (20 à 100 kg par arbre) avec une moyenne de 40 kg/arbre/an.

Sur la base de la densité moyenne des peuplements d'arganier, qui est de l'ordre de 50 arbres par hectare et du rendement en huile d'argan (3 litres pour 100 kg de noix sèches), la production potentielle est estimée à 32 000 tonnes d'huile d'argan par an. (Source: *La gestion participative et le développement des produits forestiers non ligneux comme moyen de réduction de la pauvreté féminine en zones rurales: cas du Maghreb et du Sahel* par Mme Hawa War, Volontaire, FAO, Le Caire.)

### FOR MORE INFORMATION, PLEASE CONTACT:

Pape Djiby Koné, Forestier principal, Bureau régional de la FAO pour le Proche-Orient, El Eslah El Zerai Street, 11 Dokki, B.P.2223, Le Caire, Egypte. Courriel: [djiby.kone@fao.org](mailto:djiby.kone@fao.org);  
Site web: [www.fao.org/forestry/webview/media?mediald=13331&langId=1](http://www.fao.org/forestry/webview/media?mediald=13331&langId=1)

### L'arganier et l'olivier au cœur du Sahara

La wilaya de Tindouf, en Algérie, a connu, au cours des quatre dernières années, la concrétisation de plusieurs projets inscrits au titre de la politique nationale forestière qui vise le développement des zones sahariennes a indiqué à l'Aide publique au

développement (APS) le Conservateur des forêts de cette collectivité locale. Des projets de développement, programmés pour l'année 2008 ou à brève échéance, permettront d'améliorer le couvert végétal et le patrimoine sylvicole, et de développer les zones pastorales qui ont subi un lourd préjudice en raison de la sécheresse.

Parmi les projets à concrétiser, l'extension de la ceinture verte de la wilaya de Tindouf qui s'étend sur une superficie de 30 ha, dont 20 ha plantés d'oliviers et 10 autres de variétés d'arbres sylvicoles à l'image de l'arganier (*Argania spinosa*). Ce projet, qui vise à augmenter la superficie de la ceinture verte de 20 ha, vise également à développer les capacités de production de la pépinière sylvicole de l'oued Djezz, qui avait produit, au cours de l'exercice 2007-2008, près de 400 000 plants. Les résultats encourageants réalisés dans la culture de l'arganier, à titre expérimental, ont poussé les services concernés à envisager la poursuite d'expériences de mise en terre de plants de cette variété d'arbre dans la région de l'oued El-Ma.

L'arganier est en effet un arbre qui résiste aux rudes conditions climatiques et à la sécheresse. Si la culture de ce dernier s'avère possible, toute la région en tirera le plus gros bénéfice surtout lorsque l'on sait que c'est de l'arganier qu'est extraite l'huile d'argan, produit qui fait fureur aujourd'hui sur les marchés européen et américain. Tous les produits cosmétiques sont faits à base d'huile d'argan. Notre voisin de l'ouest, le Maroc, en est parmi les plus grands producteurs dans le monde. L'huile d'argan est utilisée depuis des siècles par les femmes berbères du sud du Maroc tant pour la cuisine que pour les produits de beauté. [Source: *Le Maghreb*, Alger, 11 Septembre 2008.]



## BAMBOO

### Bamboo is the latest natural material to be used in ecofriendly building

A London architect has completed a bamboo townhouse in the middle of an urban area in Asia that is being hailed as an innovation in terms of sustainable house building in the region.

Bamboo reduces the need for air conditioning as it allows the property to be ventilated naturally while remaining secure and private. Company ROEWU's architecture believes designs like this could help reduce the cost of air conditioning in parts of the world where bamboo is the main source of energy consumption.

The house in Yi-Lan, Taiwan Province of China, built as a holiday home, was a challenge as the site is narrow with blank party walls on both sides. By introducing several double- and triple-height void spaces, the whole house is naturally ventilated despite the fact that the sides are enclosed.

The bamboo screen wrapped around the house shields the house's occupants from the view of passers-by on the street, while allowing sunlight and air to filter into the building through the bamboo poles.

The interior is intended to be like an organic forest. Sunlight and air filter in through the bamboo poles, changing the character and use of the space over the course of the day and the different seasons.

ROEWU describes its bamboo screen concept as "a radical updating of the conventional Taiwanese window screen". The approach also provides a new use for highly sustainable, fast-growing, locally sourced bamboo, which has fallen out of use in local construction. [Source: Property Wire [United Kingdom], 1 August 2008.]

### Building on bamboo

The decline in timber availability and the emergence of new technologies have spurred interest in bamboo and coir-based composites as wood substitutes for the building industry, particularly as demand swells in Asia and the Pacific. Bamboo-based panels and boards are hard, durable and may successfully substitute hard wood products.

In a paper presented at the India seminar on the National Building Code of India, Mr M. R. Anil Kumar, Managing Director, Kerala State Bamboo Corporation, said that bamboo is quickly transforming its image from a "poor man's tree" to a high-technology industrial raw material. Bamboo, now a globally recognized substitute for wood, can

be processed into products that successfully compete with conventional wood products in price and performance. Engineered bamboo may even replace wood, steel and concrete in many uses.

Now a demonstrated and commercialized technology, bamboo-based ply is competitive in pricing. Removal of bottlenecks on the supply side should create further downward pressure on prices. There has also been a demand for commercialization of bamboo as an enterprise at the farmer level.

Bamboo should be promoted on the industrial scene through appropriate tie-up arrangements with bamboo-based industries such as paper, handicrafts and the new emerging areas of ecofriendly products such as housing tiles, flooring and bamboo shoots. [Source: Business Line [India], 13 July 2008.]

### Bamboo fibres fortify plant-based car materials

Mitsubishi Motors Corporation has developed resin composite materials that are reinforced by bamboo fibres and can be used in car interiors.

This is the first time that bamboo fibres have been used in this way. Mitsubishi Motors aims to reduce CO<sub>2</sub> emissions by using the plant-based materials. It has been considering mass-producing the materials and "intends to reduce the cost to a level 1.5 times higher than existing materials", according to the company.

The material is intended for use as door trim base material, seatback board and ceiling board. [Source: Tech-On English [Japan], 1 December 2008.]

### Bamboo laptop debut

Asustek Computer plans to debut a nature-friendly laptop PC with a casing made of bamboo on Saturday at Taiwan Province of China's IT Month exhibition. The laptop, first announced last year, is part of Asustek's efforts to use renewable materials in products.

The company will launch the bamboo laptops in the United States of America and Europe at a later date, but has not decided exactly when, an Asustek representative said. [Source: PC World [United States of America], 26 November 2008.]

### Bamboo can play a major role in saving the globe

Chennai. "Everybody is talking about the problem of global warming, but I have a solution for it," says N. Barathi and

displays a bamboo sapling wrapped like a bouquet. "Bamboo acts as a carbon sink: it absorbs excess CO<sub>2</sub> in the air with three to four times more efficiency than any other tree, which means the more bamboos we plant, the more CO<sub>2</sub> is absorbed and thus we can stop contributing to global warming."

According to Mr Barathi, an agricultural scientist, bamboo can effectively clean water pollution from septic tanks and factory effluents as it has a natural affinity for nitrogen, phosphorus and heavy metals.

Barathi has developed a variety of bamboo called "beema bamboo", which is sterile, therefore does not produce seeds and can live up to 200 years, provided it gets regular water, sunlight and nutrients from the soil. Planting this in gardens will benefit generations to come, he says.

He has even calculated that Chennai needs around 13 million bamboo plants to become carbon neutral, i.e. to absorb the excess CO<sub>2</sub> in the air generated by the city's population. (Source: *The Hindu* [India], 4 August 2008.)



## BAOBAB

### New exotic fruit to hit United Kingdom shops

An unusual fruit from a native African tree, the baobab, is to be available in the United Kingdom after it has been approved by the European Union (EU). The fruit, contained in a hard nut, has six times more vitamin C than oranges and twice as much calcium as milk. Africans have eaten the fruit for thousands of years, but Europeans will consume its pulp as an ingredient in smoothies and cereal bars. Since 1997, foods not commonly consumed in the EU have had to be formally approved before going on sale.

The baobab tree grows throughout certain parts of Africa and has many different uses. The leaves can be eaten as relish and the fruit dissolved in milk or



water and used as a drink. The seeds also yield an edible oil and can be eaten raw or roasted. The fruit, bark and leaves of the tree are used to treat medical problems, including fevers and kidney disease.

However, EU customers will not be able to try out the many traditional uses of the tree and its fruit, which is 15–20 cm long. The fruit will be removed from its nut and the pulp, which is white, powdery and has a cheese-like texture, will be used as an ingredient in products such as cereal bars.

The non-profit trade association that has been lobbying for EU approval, PhytoTrade Africa, hopes the demand for the fruit will mean employment for millions of African people.

Gus Le Breton, the association's chief executive, said: "The EU decision is a crucial step to developing the global market which could be worth up to £500 m a year. Dozens of companies have shown interest in baobab since we submitted the application and many have already conducted initial research. Now that approval has been given, they can progress to full-scale product development."

The baobab tree can live for hundreds of years. Its trunk can grow up to 15 m in circumference and reach a height of 30 m. Some baobab trees, which are 80 percent water, are hollow and have been used as bars in shops and even prisons. (Source: BBC News, 15 July 2008.)



## BEE PRODUCTS

### Honey hunting

#### *Honey hunting in Asia*

In Asia, large volumes of honey are still obtained by plundering wild colonies of honeybees. This is because some of the Asian honeybee species exist only in the wild, and cannot be kept inside hives made by humans. Honey hunting of *Apis laboriosa*, a honeybee species that nests at high altitudes, is practised in the Hindu Kush Himalaya region. Honey hunting of *Apis dorsata* is practised throughout its distribution range, from Pakistan in the west to the Philippines in the east. Honey hunting of cavity-nesting *A. cerana*, *A. koschevnikovii*, *A. nuluensis* and *A. nigrocincta*, and the "little" honeybee species *A. florea* and *A. andreniformis* is practised wherever the bees occur.

The large Asian honeybee species, *A. laboriosa* and *A. dorsata* often nest high on cliffs or in high trees. However, the combs are very large and yields of honey are

worthwhile. Honey hunting is therefore a dangerous, although worthwhile, activity in many regions of Asia. Local customs and traditions have become associated with honey hunting, and have been studied by anthropologists and social scientists: this means that traditional honey hunting and cultural associations have been well documented in some areas. Indeed, in Nepal and Malaysia, tourism based on viewing traditional honey hunting has now taken off.



### THE AFRICAN HONEY GUIDE

Honey guides are African woodland birds belonging to the genus *Indicator*. They are remarkable for apparently leading honey hunters (as well as honey badgers and other bee predators) towards bee nests. There are several different species of honey guide, the most common being the greater honey guide *Indicator indicator*, and the lesser honey guide *Indicator minor*.

Honey hunters whistle to locate the honey guides. The birds then chatter continuously and flutter conspicuously, gradually leading the honey hunters towards the vicinity of a bees' nest, when they become quiet. When the honey hunters plunder the nest, the honey guides are rewarded with feeding from the bees' nest: brood, pollen and honey. Another unusual feature of these birds is their apparent ability to digest beeswax.

**Honey hunting outside Asia**

Honey hunting of indigenous *Apis mellifera* colonies is commonly practised in Africa, and of feral *A. mellifera* colonies in Central and South America, wherever colonies are abundant – most often in forested areas. [Source: *Bees and their role in forest livelihoods*, FAO Non-Wood Forest Products series 19 [in press].]

**Prevention and treatment of MRSA with manuka honey**

If gone untreated, methicillin-resistant staphylococcus aureus (MRSA), a mutated form of bacteria that has developed a resistance to antibiotics, can be fatal. Amid much hysteria, scientists are beginning to recognize that a particular type of honey known as manuka is actually effective against this notoriously resilient superbug. Researchers have determined that MRSA cannot survive in the healing environment created by manuka honey. MRSA is a bacterium that divides into two similar cells every half hour. Studies have shown that manuka honey interferes with the cell cycle of MRSA by affecting the separation of new cells, so that those unable to complete division become disabled.

All types of honey contain hydrogen peroxide, a known antiseptic and disinfectant. Yet an additional antibacterial component in manuka honey, known as UMF, is unaffected by enzymes that dilute the effectiveness of regular honey. UMF remains active when used as a wound dressing and diffuses more deeply into skin tissues.

In addition to its unparalleled antibacterial properties, manuka honey is also considered to be antimicrobial and, therefore, capable of treating both bacterial and fungal infections. Manuka honey also has anti-inflammatory properties, which reduce pain in damaged tissue.

Manuka honey is made by bees from the nectar of the flower of the manuka bush, which is indigenous to New Zealand. Manuka honey-based MRSA treatments are becoming available to hospitals and individuals worldwide as word of its effectiveness becomes mainstreamed. With reports of manuka honey acting as a natural cure for MRSA, antibiotics will certainly be used less, especially since MRSA drugs usually prove to be useless. [Sources: PR-Inside.com (Pressemitteilung) [Austria], 30 June and 5 September 2008.]

**Distinctive flavours inhabit honey**

Tupelo, lavender, sourwood, linden tree, sage, buckwheat, eucalyptus and Bradford pear are mere sweet drops in the honey pot. More than 300 distinctive types of honey are produced in the United States of America.

“Each region of America grows different plants and therefore has different honey,” explains Mark Brady, President of the American Honey Producers Association. “Texas, for example, produces honey from white brush, cat claw and mesquite plants; Nebraska is famed for its clover and alfalfa honey; South Carolina and Florida for tupelo.”

“You can even get honey from cactus,” explain Erika Wain and Klaus Koepfli, of California’s Klausesbees honey company, who sell a thick cactus honey from the Mojave Desert of California.

Despite this wide range of choices, most Americans have only tasted honey blends. “Companies that supply supermarkets mix honey from many different beekeepers,” explains Troy Fore, Executive Director of the American Beekeeping Federation. “Supermarket honey is just as good and nutritious as any honey. However, unique and unusual flavours may be lost in the intermingling of many flavours.”

Bruce Wolk, Director of Marketing for the National Honey Board, recommends logging on to the board’s Web site, www.honeylocator.com, to discover honey’s varied flavours. The site lists hundreds of types of unique honeys as well as where to buy them.

Pure Mountain Honey (www.MtnHoney.com), is just one of the artisanal producers featured on the National Honey Board’s site. Owners Carl and Virginia Webb, who humorously say they employ 7 million workers, make sourwood honey from sourwood trees indigenous to Georgia. Their honey won top

prize for the “Best honey in the world” at the 2005 World Honey Show in Dublin, Ireland, which included 400 entries representing 21 different countries. [Source: Fairbanks Daily News-Miner [United States of America], 16 July 2008.]

**Beeswax in cosmetics, soap and ointments**

Top-quality, pure beeswax can be used to make fine soap, shampoos, skin ointments and cosmetics. If used this way, it is possible for beeswax from just one bee colony to generate more income than from all the honey harvested from the same hive. Scrupulous cleanliness, careful working and attractive packaging are essential for success with these value-added products. [Source: *Bees and their role in forest livelihoods*, FAO Non-Wood Forest Products series 19 [in press].]

**Bee checklist buzzes online**

Biologists have recently completed an online effort to compile a world checklist of bees. They have identified nearly 19 500 bee species worldwide, about 2 000 more than previously estimated. There is a current crisis known as “colony collapse disorder”, an unexplained phenomenon that is wiping out colonies of honeybees throughout the United States of America. This crisis has highlighted the need for more information about bee species and their interactions with the plants they pollinate.

The bee checklist includes currently accepted scientific names, synonyms and common names. A current, complete and authoritative taxonomic checklist is key to linking all information about species.

Compiling the checklist has taken more than five years and the efforts of leading bee taxonomists on six continents. The checklist, coordinated by the staff of the Integrated Taxonomic Information System, a public-private partnership hosted at the National Museum of Natural History, is available at www.itis.gov. [Source: BCN 284, August 2008.]



**The amazing benefits of the açai berry**

The many health benefits of the açai fruit, which is rapidly growing in popularity worldwide, have been long known by indigenous Central and South Americans where the fruit grows on the açai palm in swamplands.



The berry is a small fruit, the size of a grape. It is dark purple in colour with a large seed. The *açaí* palm bears fruit twice a year. When consumed, the berry leaves a slight hint of bitter aftertaste, which resembles that of chocolate. It can be prepared in many ways. Mostly, the berry is prepared as a drink.

When consumed on a regular basis, the *açaí* berry offers many health benefits. The fruit is good for the body mainly because of its antioxidant properties: it is able to rid the body rapidly of harmful toxins. As a result, shortly after consumption of *açaí* berries, an individual may feel a boost in energy levels. *Açaí* improves mental clarity and promotes sound sleep. It even helps with digestive functions.

Perhaps the greatest benefit that has been given the most attention is that the *açaí* berry helps in the weight loss process. Blood circulation is improved when toxins are removed. Improved blood circulation eventually leads to slowing down of the ageing process. Skin will look healthier and cholesterol levels will be regulated. The heart also strengthens. If the body is currently suffering from any physical injuries, the improved blood circulation and the strong heart will help speed up the healing process. [Source: *American Chronicle* [United States of America], 25 November 2008.]



#### Mulberries hailed as new superfruit

The mulberry, which resembles a raspberry, boasts an impressive nutritional CV, outperforming cranberries, blueberries, blackberries and raspberries. The mulberry's levels of antioxidants are 79 percent higher than blueberries and 24 percent more than those found in cranberries. It is packed full of vitamins and fibre and contains high levels of resveratrol, the antioxidant superhero, which helps combat heart disease and cancer and helps lower cholesterol and

other diseases associated with chronic inflammation.

Amazingly, this antioxidant appears to fool cancer cells into believing the DNA has already been damaged and so possibly help prevent the spreading of the disease. It is early days but scientists at Harvard University are excited about another insight into how cancer may be tackled.

And mulberries can help to keep you fighting fit throughout the winter too – a recent report in the *Journal of Infectious Diseases* states that resveratrol decreased the reproduction of the influenza virus; in other words, it may be useful in preventing or treating flu. [Source: Easier (press release) [United Kingdom], 25 September 2008.]

#### Heatwave spells Swedish berry shortage

The recent dry spell has led to an acute shortage of berries in Swedish woodlands. Mainly affected are the woodlands south of upper Norrland in northern Sweden. According to Marogan Tjernberg, spokesman for the Swedish Forestberry Association, the situation is really dire in southern areas. Summer's popular blueberries and cloudberries have simply shrivelled up in the dry heat and disappeared. Southern counties such as Värmland are worst affected, but it remains to be seen if other areas recover, as it is still early in the season.

As well as mushroom picking, berry picking is a popular Swedish pastime. It is also a source of economic income. In 2000, according to the Swedish Forestberry Association, 14 000 tonnes of berries were collected for retail purposes, of which 70 percent were blueberries. Commercial berry pickers are almost always non-Swedes. [Source: *The Local* [Sweden], 3 August 2008.]

#### Goji berry poses risk to the United Kingdom's tomato and potato crops

Goji berries might look innocuous, but the current craze for this "superfood" – fuelled by the endorsement of celebrities – could devastate the United Kingdom's multimillion-pound tomato and potato crops.

The Government has alerted farmers to the threat after it revealed last week that nearly 90 000 goji berry plants, which can carry diseases that are lethal to other crops, have been illegally imported from East Asia in the past year. Some of the plants have been destroyed but it is feared that most are already in the gardens of goji-berry enthusiasts.

The Department for Environment, Food and Rural Affairs (Defra) has issued a warning to commercial growers, garden centres and gardeners, while the National Farmers' Union has warned that disease carried by the bright red berries could be "devastating".

The goji berry, also known as *Lycium barbarum*, contains up to 500 times more vitamin C than an orange, and is native to the Tibetan Himalayas. It has been used for medicinal purposes in China for centuries.

The Plant Health and Seeds Inspectorate warned there is a "substantial trade" in prohibited goji plants in the United Kingdom. Seeds and berries can be imported from anywhere in the world, but only plants grown within the European Union are permitted to be imported to the United Kingdom, because they are certified to be free of disease. [Source: *The Independent* [United Kingdom], 20 July 2008.]

#### *Synsepalum dulcificum*: miracle fruit turns sour into sweet

Fort Lauderdale, Florida. A Florida grower said demand is rising for a red berry nicknamed "miracle fruit" that can make sour things taste sweet. Curtis Mozie said the berries, which are native to West Africa, change taste for more than two hours, making sour things such as limes taste like candy, the *South Florida Sun-Sentinel* reported on Monday.

Scientists said the berry, *Synsepalum dulcificum*, contains a glycoprotein called miraculin that changes taste.

Mozie, who has more than a thousand "miracle fruit" trees in his orchard, charges US\$3 a berry and ships 3 000 berries a week. Cancer treatment centres have contacted him to see if the fruit will boost the appetite of chemotherapy patients, the newspaper said. [Source: *The Money Times* [India], 1 July 2008.]



CINNAMON

#### Cinnamon, not just a culinary spice

Cinnamon (*Cinnamomum verum*) has played an important role in medicinal healing and as a culinary spice.

Cinnamon was used in Egypt as an embalming agent, a product that was considered more precious than gold. Its warming qualities made cinnamon essential to traditional Chinese medicine and its energy-based medical systems.

As its popularity grew, mediaeval Europe heavily relied on cinnamon. It was a product in great demand and became one of the first commodities traded regularly between the Near East and Europe.

Studies are currently under way by the United States Agricultural Research Service to demonstrate that less than half a teaspoon per day of cinnamon reduces blood-sugar levels in persons with Type 2 diabetes. Some question the toxicity of the regular use of cinnamon. However, results of a study published in the December 2003 issue of *Diabetes Research and Clinical Practice* reported that cinnamon enhanced muscle cells for better insulin utility.

**CINNAMON: THE CEYLON, CHINA CONNECTION**

The fragrant, sweet, warm taste of cinnamon that people have come to love so much comes from the brown bark of the cinnamon tree. It is produced in a dried, tubular form known as quill (cinnamon sticks) or is readily available as ground powder.

The main varieties are Ceylon and Chinese; Ceylon is slightly sweeter, more refined and difficult to find in local markets. Ceylon cinnamon is produced in Sri Lanka, Madagascar, Brazil and the Caribbean. The Chinese variety, more popular in North America, is known as cassia and is less expensive than the Ceylon variety. The Chinese variety is produced mainly in China, Viet Nam and Indonesia.

It is the essential oils of the bark of the cinnamon tree that give cinnamon its unique healing abilities. The oils contain active compounds such as cinnamaldehyde, cinnamyl acetate and cinnamyl alcohol, among other volatile substances.

These oils qualify the spice as an antimicrobial food. Research has shown that it has the ability to stop the growth of bacteria and fungi, including the problematic yeast, candida. The *International Journal of Food Microbiology* (August 2003) reported that the antimicrobial properties of cinnamon are so effective that it has been used as an alternative to traditional food preservatives.

Cinnamon is also known for aiding clotting of blood platelets through cinnamaldehyde. This product helps to prevent unwanted clumping of blood platelets, important in emergency injuries when bleeding should stop. Cinnamaldehyde works by inhibiting the release of an anti-inflammatory fatty acid called arachidonic acid from platelet membranes. This process is also anti-inflammatory, which renders cinnamon an anti-inflammatory food.

Cinnamon is a powerful, natural antioxidant when compared with other antioxidant spices such as anise, ginger, liquorice, mint, nutmeg and vanilla. When compared with chemical food preservatives (BHA, BHT and propyl gallate), cinnamon was found to prevent oxidation more effectively than other spices, except mint and chemical antioxidants.

There is much to say about the odour of this spice in boosting brain activity. Research has shown that chewing cinnamon-flavoured gum or just smelling cinnamon-enhanced products improved brain functioning, attention span, visual-motor speed and memory.

Iron, calcium and the trace mineral manganese are also found in cinnamon. Moreover, it is a good source of dietary fibre. When calcium and fibre combine, they bind bile salts and remove them from the body. Bile salts, if not removed from the body, can damage colon cells, increasing the risk of colon cancer. Fibre in cinnamon may provide relief from constipation or diarrhoea experienced by sufferers of irritable bowel syndrome.

As a culinary treat, cinnamon can provide a quick, healthy twist to snacks such as cinnamon toast or honey and cinnamon on wholewheat toast. A deliciously warming beverage is cinnamon sticks simmered in soy milk. Adding cinnamon to dishes such as lamb for a Middle Eastern-inspired meal is a memorable departure from regular recipes. Adding cinnamon to curries gives them a further kick.

Cinnamon is an excellent spice with great healing properties, widely used in Eastern and Western herbalism. It is equally important in culinary creations across most cultures. Cinnamon is a spice that should be truly treasured! [Source: Heather Little-White, *Jamaica Gleaner* [Jamaica], 6 September 2008.]

**Expanding Sri Lanka's cinnamon trade**  
The Agriculture and Agrarian Services Ministry of Sri Lanka has devised a long-

term economic strategy to capture lucrative export markets for indigenous subsidiary food crops. Under the "Api Wawamu-Rata Nagamu" concept, the Ministry expects to increase cinnamon exports up to 3 000 tonnes by 2010. The Ministry has allocated Rs7 million for the Export Agriculture Department to expand cinnamon cultivation, which could potentially attract more export markets.

Ministry Advisor A.H.L. Somathilaka told *The Island* financial review that Sri Lankan cinnamon had been rated as the best-quality cinnamon in the world market as the country had been able to supply 90 percent of cinnamon requirements. In the world market, the supply of quality cinnamon was about 15 percent and the supply of cassia cinnamon, a lower-quality substitute, was around 85 percent.

He said that Sri Lanka had been supplying quality cinnamon to the world market while China, Indonesia and Viet Nam had been exporting cassia cinnamon. The Ministry was positive that Sri Lanka would be able to increase cinnamon exports by 5 percent in 2010.

Somathilaka explained that cinnamon had been cultivated on 25 413 ha, with each hectare yielding around 500 kg of cinnamon annually. Of this amount, around 5 350 tonnes were being exported and Sri Lanka had been earning Rs2 229.2 million from cinnamon exports annually. Future plans for cinnamon cultivation would include exports of 3 000 tonnes by 2010, quality enhancement and increases in revenue, production and profits. [Source: *The Island* (subscription) [Sri Lanka], 22 September 2008.]



**Portugal fighting screw-cap trend to save cork forests**

It has recently emerged that falling demand for authentic cork stoppers is gradually forcing farmers to replace cork trees with alternative crops, such as eucalyptus trees.

At present, according to the World Wild Fund for Nature (WWF) Web site, Portugal is the world's largest cork producer, followed by Spain, Algeria, Morocco, Italy, Tunisia and France.

The majority of cork harvested in the Iberian Peninsula is used to produce bottle stoppers, which represents an estimated 70 percent of the income from harvest.

However, traditional cork stoppers are being replaced with synthetic closures or screw caps, which now account for around 20 percent of the market.

It is said that problems with bottles of wine becoming "corked" (in layperson terms, where the wine develops a musty smell and becomes undrinkable because of contamination with a chemical known as trichloroanisol), have led many wine connoisseurs to opt for bottles with synthetic cork or screw tops instead.

In a nutshell, this shift in traditional bottle stopping to using modern-day products is threatening to wipe out cork forests, along with the species that reside therein.

Cork oak forests in Portugal cover an estimated 33 percent of land mass and are home to a number of rare and endangered species, particularly in southern Portugal. These include black storks and booted eagles, which are already disappearing in some areas, and the Iberian lynx, which over the past few years has been the subject of extensive reporting and campaigning.

A study by WWF, which was recently reported in *The Telegraph* newspaper, estimated that up to three-quarters of the Mediterranean's cork forests could be lost within ten years. Over the past ten years in the Algarve, cork forests have declined by 28 percent.

In an attempt to boost productivity, Portuguese cork producers have introduced new sterilization and purification methods to ensure corks are not contaminated with trichloroanisol.

Over the years, Portugal's cork industry has not been without turmoil. In August 2008, environment protection agency Quercus considered the felling of 1 200 cork trees in Vale da Rosa a "glaring disregard" of the law. The trees were felled to make space for a mega residential development. Legal action was instigated by Quercus to stop the felling, alleging that the trees are of a species protected by Portuguese law.

Back in 2001, there were political moves to defend Portugal's cork oaks when delegates from the Socialist Party-run Council of Montijo met with officials representing the then President Jorge Sampaio, with the initiation of a national petition to be presented to Parliament.

Motivated by the perceived weakening of legal protection for cork and holm oak trees, environmental groups such as Quercus voiced their concern over the proposed changes to the law since it was first drafted in the year 2000.

The felling of 66 ha of cork forest for the controversial Alqueva dam project, in northern Alentejo, also highlighted threats posed by development projects to existing oak woodland. [Source: *Portugal News*, Algarve [Portugal], 6 December 2008.]



#### Cork comes unscrewed

Is the corkscrew destined to join the garter, snuff box and cassette tape in that dusty drawer of obsolete accessories? Given that about 90 percent of New Zealand wines are now under screw cap and even the French are starting to convert, it certainly looks likely that in the future far fewer corks will be pulled.

Cork has been used as a stopper since the 1600s, when it was adopted by Dom Perignon to replace the cloth-wrapped wooden plugs that kept popping out of his champagne containers.

However, as a natural product, cork has an inherent variability, with some corks providing the tight seal required, while others allow some oxygen to sneak past. Even more of a concern has been a nasty mould called trichloroanisol (TCA) that imparts musty aromas and flavours. But cork's monopoly created complacency and producers were seen to be doing little to sort out this issue.

That was until new closures, such as synthetic corks and screw caps, came on to the scene and were embraced by winemakers, frustrated that up to 10 percent of their products could be spoiled by their packaging. Of these it is the screw cap that has really taken off. The practicality of the cap and reassurance that the wine will be taint-free, has meant that drinkers are now sending back wines if they are not under screw caps!

Caps have not been without their critics, some blaming their near-hermetic seal for the creation of eggy-smelling hydrogen sulphides in wine. This was a problem in

the early days, but appears to have been largely rectified through more appropriate winemaking. [Source: *New Zealand Herald* [New Zealand], 7 September 2008.]

## ESSENTIAL OILS

### The role of essential oils in combating mosquito-borne diseases

Despite rapid advances in medical science during the past decades, mosquito-borne diseases such as dengue, Japanese encephalitis (JE), filiarisis, malaria and chikungunya continue to torment human beings. This is because mosquito vectors as well as causative agents such as bacteria and fungi have developed resistance against pesticides and antimicrobial drugs.

According to Dr Nor Azah Mohamad Ali, senior researcher at the Forest Research Institute of Malaysia (FRIM), the best move to curb the breeding of the mosquito is to destroy its larva or through the use of insect repellents. "At the moment, the control of the mosquito vectors depends on the chemical-based and synthetic repellents like dimethyl phthalate, malathion and dimethyl-m-toluamide (DEET). Even though the chemicals are effective, some could be hazardous in addition to being ozone-depleting, and continuous use could make the mosquito vectors resistant to insecticides."

Dr Nor Azah suggested the possibility of using herbs and spices, whose essential oils are able to repel insects, as insecticides. The presence of monoterpenoids such as limonene, citronellol, geraniol and citronellal have been reported as having insect-repellent properties. "As aromas play an important role in controlling the insects' behaviour, essential oils can be used as insect repellents," she said.

From FRIM's research, a number of essential oils such as *Cymbopogon nardus*, *Litsea eliptica*, *Melaleuca cajuputi* and *Cinnamomum* spp. demonstrate repellent properties against the *Aedes aegyptii* mosquito. She said essential oils from other plants reported to be able to repel insects are those from geranium (*Pelargonium citrosium*), sandalwood (*Aquilaria malaccensis*) and sweet basil (*Ocimum* spp.).

FRIM's research also showed that the essential oil product "Deesrept" is able to repel the mosquito to the extent of killing it, said Dr Nor Azah.

The discovery of "Deesrept", which contains one or a blend of essential oils from the citrus family, is among the successes chalked up by FRIM from its research on essential oils. "This essential oil can be included in creams and lotions," Dr Nor Azah said. Products could also be used as body sprays or air fresheners, she said, adding that a Bumiputera firm is working on commercializing the product.

In studies held at FRIM, it was found that aroma-producing plants such as citrus, *selasih* (*Ocimum*), *serai* (*Cymbopogon*) and *medang* (*Cinnamomum*) exhibited potential in repelling mosquito when tested on *Aedes aegyptii* via the American Society Testing and Materials (ASTM) standard E951-85. Dr Nor Azah said the most effective essential oils discovered so far are those from citrus plants.

Further research is needed to ensure non-toxicity and optimum efficiency of the essential oils. Moreover, public awareness on alternative products for repelling mosquito is high, but there are only a few of such products on the market because of limited resources of raw materials. The use of natural herbs as raw products has pushed up the processing costs.

FRIM has begun the cultivation of medicinal herbs such as *serai wangi* for research and commercial purposes. It is also taking proactive measures in maintaining natural resources. "Our jungles contain numerous herbal treasures that have potential, but if we acquire any species for research, then we will plant it back." [Source: Bernama [Malaysia], 24 September 2008.]

**Himalayan oregano effective against MRSA**

A team comprising researchers from a United Kingdom university, members of local businesses and an NGO in India has discovered that the essential oil of Himalayan oregano has strong antibacterial properties and even kills the hospital superbug methicillin-resistant staphylococcus aureus (MRSA). They hope these findings will lead to the development of hand soaps and surface disinfectants in hospitals and other health care settings.

The United Kingdom researchers are from the University of the West of England (UWE), Bristol, who teamed up with, among others, India-based Biolaya Organics, a company that develops projects aimed at conserving endangered medicinal herbs, for example by cultivating them using sustainable methods and providing alternatives such as more common species.

The team is working on a project to give rural communities the means to generate income from sustainable collection of NTFPs in the Kullu district of Himachal Pradesh. Earlier this year, the United Nations Environment Programme (UNEP) gave the project the SEED award. SEED is an international programme with UN backing that supports entrepreneurial partnerships that develop creative, locally led solutions to the global challenges of sustainable development.

The creative and innovative part of the



*Origanum vulgare*

project is that it potentially gives a sustainable source of income to the people of the Himalayas while at the same time providing United Kingdom hospitals with an environmentally friendly way of preventing the spread of MRSA. The Himalayan Oregano Project was one of five SEED 2008 winners that were selected this year from over 400 entries worldwide.

Himalayan oregano is just common *Origanum vulgare* that grows in the Himalayas. In fact, the local people in Kullu do not regard it as having any culinary or medicinal value and treat it as a weed: they call it "bekaar gahaas" or "useless grass" because even cows and goats will not eat it.

Ben Heron from Biolaya Organics said they started working with oregano because it is a plant that can be gathered year after year without depleting the population in the wild. He said the project aims to pay local herb collectors the same amount they would receive if they collected endangered herbs, so they become less dependent on the latter.

Scientists already knew that Mediterranean oregano oil was a powerful antimicrobial, because of an essential compound called carvacol. But nobody had tested the Himalayan oregano oil before, said Heron, so they teamed up with SGS who run a laboratory in Delhi and found it contained as much carvacol as Mediterranean oregano.

At SGS they ran further tests and found that Himalayan oregano oil was more effective at killing MRSA than 18 antibiotics. The microbiologists at UWE are now carrying out further tests, and hope to publish the results in a scientific journal. [Source: *Medical News Today* [United Kingdom], 24 November 2008.]



**A rain forest fungus may be the future of biofuel**

A recent discovery in the Patagonian rain forest has revealed a most extraordinary fungus that produces gas nearly identical to diesel fuel. *Gliocladium roseum*, living inside the ulmo tree in the rain forest, not only produces diesel-like fumes but also feeds off cellulose; hence its potential as a fuel supplier is magnified by the fact that it would not be disruptive to food chains. More research is soon to follow. [Source: Mongabay.com, 4 November 2008.]

**Antibiotic-producing mushroom discovered**

The Philippines. A group of government scientists recently discovered an antibiotic-producing micro-organism from a type of mushroom that has been found to be effective in treating diseases of livestock, particularly swine, the Department of Science and Technology (DOST) reported yesterday.

The scientists from DOST's National Research Council of the Philippines, led by Dr Asuncion Raymundo, a plant pathologist, found that the mushroom species *Clitopilus passeckerianus* produces the antibiotic called pleuromutilin.

Data from DOST's Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) showed that the Philippines was among the leading hog raisers in the Asia-Pacific Region in 2001. However, the report also stated that Luzon's production rate, compared with that of Mindanao and Visayas, has plummeted in 2001 compared with earlier years, attributing this to the



high mortality rate among swine on account of disease. "The NRCP antibiotic derived from the mushroom has the clear potential to solve this problem," DOST said.

For thousands of years, humans have recognized the varied uses of mushrooms. In addition to being an effective fermenting agent, they are also considered an efficient waste disposer and major manufacturer of organic fertilizer, DOST said. Mushrooms can grow anywhere from farm animal manure, from spoiled food in the kitchen, to the dead barks and leaves in the deepest reaches of foliage. [Source: FreshPlaza [Netherlands], 18 July 2008.]

#### Nature's "medicine chest" discovered

Over 25 percent of all contemporary medications originate from moulds, mushrooms and other fungi, including penicillin and cyclosporine, an immunosuppressant that improves the acceptance rate following an organ transplant operation.

A ridge in the highest cloud forest of Belize, at an altitude of over 3 500 feet (1 067 m), has been found to be a "mushroom heaven". In 2007, fungus scientist Timothy J. Baroni from the State University of New York at Cortland and others discovered over 40 new species on the ridge in under two weeks. "We have a medicine cabinet at our disposal, and the medicines don't have labels yet," says Baroni, who is funded by the National Geographic Society's Committee for Research and Exploration.

The great potential of new fungus remains to be explored. [Source: *National Geographic*, 26 November 2008.]



#### GINSENG (*PANAX* spp.)

#### Ginseng found highly effective for weight loss and diabetes control

Ginseng has long been one of the foundations of healing in Chinese medicine, and is probably one of the world's best known herbs. The botanical name *Panax* means "all curing" in Greek. This 5 000-year-old healer has traditionally been used as a restorative tonic to increase energy, stamina and well-being. Western scientists have confirmed the efficacy of ginseng for many of the traditional uses. Now researchers are adding to the traditional list, documenting ginseng as highly effective in weight loss and diabetes control.

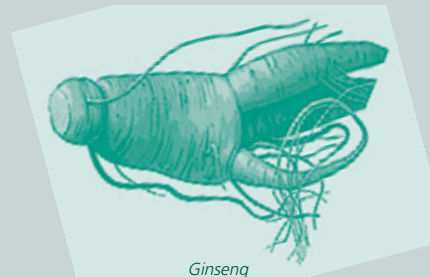
New research documents ginseng's effectiveness against obesity and diabetes.

#### CHARACTERISTICS OF GINSENG

Ginseng is one of the adaptogens, a group of non-toxic, non-habit forming substances that normalize body chemistry and functioning. Adaptogens increase the body's ability to cope with physical, emotional and environmental stress. They work in a synergistic manner, increasing the body's own ability to fight off disease. The greater the body's need for an adaptogen, the increasingly active the substance becomes.

Ginseng is a plant with many different components. It is used in its entirety in the preparation of teas and the root is used in powders and capsules. The term ginseng is used to refer to *Panax ginseng* and *P. quinquefolius*, first cousins in the Araliaceae family. Each contains a different balance of the ginsenosides, giving it a unique character.

Ginseng was first found in Manchuria and was referred to by the ancient Chinese as "Ren Shen", meaning "Man root". They believed that regular consumption of ginseng led to a long and happy life. Ginseng became so valuable that it was prized beyond gold. It was so popular that the supply of ginseng from the Chinese mainland could not meet the demand, and imports were brought from Korea.



Ginseng

When the wild stock was exhausted, commercial cultivation began. Wild ginseng is believed to have a greater medicinal value than the cultivated variety.

Ginseng is used fresh or dried. Sometimes plant leaves are added with the root, but the root is the highly prized part of the plant. Cultivated ginseng is available as red ginseng and white ginseng. The difference lies in the way the root is processed. The different geographic names before the word "ginseng" indicate where the plant was grown. Subtle variations exist between the varieties.

Ginseng contains a number of compounds that are unique. Many of these elements have an effect on the adrenal glands, increasing the amount of hormone secretion to ward off both physical and emotional stress. Scientists believe that it is this effect that is responsible for the stress-fighting power of ginseng.

The *Phytotherapy Research Journal* reports that ginsenoside Rg3, a red ginseng constituent, can effectively inhibit cells in the fat storage process. New research in the *Journal of the American College of Nutrition* reveals the efficacy and safety in the use of ginseng for diabetes, with mounting evidence to support the claim that American ginseng is useful in improving diabetes control, reducing associated risk factors such as hyperlipidaemia and hypertension, and ameliorating insulin resistance. The *Journal of Ethnopharmacology* reports a study acknowledging ginseng's long history as a herbal remedy for diabetes. As reported in the *Journal of Evidence Based Complementary and Alternative Medicine*, initiating studies have shown that American ginseng increases insulin

production and reduces cell death in pancreatic beta-cells. Studies have also revealed American ginseng's ability to decrease blood glucose in Type 2 diabetes patients as well as in diabetes induced animals.

Ginseng lives up to its name as a cure-all. Russian research showed that ginseng stimulated physical and mental activities in tired and weak individuals and increased energy and physical endurance. Asian researchers have documented ginseng's ability to reduce fatigue and increase stamina and found that ginseng aids in the formation of red blood cells, helping to eliminate anaemia. Ginseng strengthens the gastrointestinal system, facilitates liver regeneration, and helps detoxify poisons. In addition, ginseng is one of the few herbs showing promise in the treatment of

chronic fatigue syndrome. [Source: Natural News.com [United States of America], 1 December 2008.]

**Wet weather forcing early ginseng harvest in Canada**

Wet weather this summer has forced many ginseng farmers into an early harvest. Growers are racing to salvage what they can now that root rot and berry blight have become a problem. Shade and straw on third- and fourth-year fields have been removed on some farms in preparation for an early harvest. Under normal conditions, the mature root is dug in October and then only in its fourth year.

Phytophthora root rot is the major threat because the fungus spreads rapidly in saturated soil. Ginseng root should have the consistency and colour of fresh parsnips when it comes out of the ground. Root rot moves quickly once it is established and turns ginseng root to mush. Red berries at the top of the ginseng plant develop purple discolourations in the presence of botrytis head blight. The berries, which are harvested for seed, develop a grey, fuzzy appearance as the fungus matures. Sean Westerveld, a ginseng and medicinal herb specialist with the Ontario Ministry of Agriculture, says it is difficult to fight root rot when the soil is continuously saturated.

Under ideal conditions, ginseng will receive light rain or dew over night and dry, warm conditions by day with low humidity.

Most of the Ontario ginseng crop is sold in Asia, where it is used in tea and food and as a traditional folk medicine. [Source: *Tillsonburg News*, Ontario [Canada], 15 August 2008.]



**Lac technology to increase the shelf-life of fruits**

Ranchi, Scientists in the state have discovered an ecofriendly and economic preservative – lac wax coating – to use for commercial purposes. “We were aware of the fact that lac wax coating on fruits could help preserve them for long, but now we are planning to use the technology for commercial purpose,” said K.K. Sharma, principal scientist at the Indian Institute of Natural Resins and Gums.

Annual lac production in India is around 25 000 tonnes, of which the state’s share is about 40 percent, Sharma added. Until

now, the produce of the state was being used mainly to manufacture electrical insulators and dye fixtures.

Lac is a natural polymer derived from insects and it has great adhesive strength.

It has high electrical insulation, is waterproof and resistant to moisture and corrosion. It is also highly plastic.



The institute has been conducting research on lac since 1930 and has earned a worldwide reputation on the subject. “We have found that the shelf-life of certain fruits and vegetables could be increased by three months using a thin coating of lac wax,” said Sharma.

Research on fruits such as apples and oranges, and vegetables such as pointed gourd and capsicum, have given encouraging results. “The lac wax coating allows the oxygen to pass but prevents water and moisture permeability to keep the fruits fresh,” said Sharma, adding that a thick coating of lac wax could result in fermentation.

To develop a flawless technology of wax coating, the institute has recently tied up with the Central Institute of Post-Harvest Engineering and Technology, Ludhiana. [Source: *Calcutta Telegraph* [India], 25 September 2008.]



**Lianas in Guyana**

Liana is the common name for woody vines that depend upon the old-growth tree canopies in rain forests. Liana is useful for furniture production, as shown by the successful business venture at the Liana Cane sustainable furniture factory in Guyana.

Kufu (*Clusia* spp.), a material similar to rattan and bamboo, is one such liana that grows from the canopy down to the forest floor. Kufu is used to make furniture frames and cladding. Nibbi (*Heteropsis flexouosa*), a small vine that winds its way

from the forest floor up trunks is perfectly suited for binding joints, as well as for wicker-like weaving. The fibre of the ite palm, tibusiri (*Mauritia flexuosa*), makes a cord-like material that is woven into fabric for seats and chair backs.

The use of NTFPs presents an option for indigenous people to create sustainable economic alternatives to plundering the timber of their lands. As liana can only grow in the forest, finding a use for these vines gives purpose to maintaining the health of that forest. [Source: *extracted from: W. Gordon. 2008. One factory, one forest: design, ecology and microeconomic development in Guyana*. New York, United States of America, Core 77.]

**FOR MORE INFORMATION, PLEASE CONTACT:**

Jocelyn, Compton or Sharla, Liana Cane, 173 Charlotte Street, Georgetown, Guyana.

Fax: (592) 2274232;

e-mail : [liana@networksgy.com](mailto:liana@networksgy.com) and [lianacane@hotmail.com](mailto:lianacane@hotmail.com)

**Una Liana de los bosques tropicales de América, es al presente vulnerable a causa del comercio**

La Liana robusta es un producto forestal no maderero (PFNM) de importancia económica y se encuentra en los bosques tropicales de América. Pertenece a la familia Bignoniaceae (*Arrabidaea chica* [Humb. y Bonpl.] Verl.), supera los 20 m de longitud y apoya su estructura en el dosel superior de las copas de los árboles en los bosques tropicales de América.

Su mayor empleo y uso tradicional es la utilización de sus hojas como colorante natural para dar tonalidades marrones a utensilios artesanales.

Recibe diversos nombres comunes: en Costa Rica bejuco de fierro, carajirú en



*Arrabidaea chica*

Brasil, puca panga en Perú, chica en Colombia, witts en Nicaragua, nea curi en Ecuador.

En forma complementaria el tallo se ha empleado para la obtención de fibras que se utilizan para la confección de cestos. Para ello la planta es cosechada en poblaciones silvestres.

Se distribuye en bosques desde el sur de México hasta el norte de Argentina, se encuentra en altitudes de 0 a 1000 m sobre el nivel del mar. Sobre todo en las partes húmedas de bosques tropicales y muy húmedos.

**Propiedades:** En Perú, Duke y Vásquez (1994) hacen referencia a que este colorante es también usado para el tratamiento de afecciones de la piel y herpes; y sus hojas son usadas como antiinflamatorio. En Costa Rica, Ocampo y Valverde (1987) hacen referencia a que los aborígenes Guaymi, emplean las hojas hervidas para los dolores menstruales y también como colorante para teñir fibras.

**Comercio:** El comercio es regional en Amazonas, Brasil. La situación del comercio de las hojas se ha ampliado al mercado internacional para su empleo en la industria de cosméticos.

**Procedencia de la materia prima:** La materia prima son las hojas, que se cosechan en poblaciones silvestres.

**Exigencias ambientales:** *A. chica* presenta, a priori, condiciones para su domesticación por medio del manejo agroecológico. Esta especie, considerada una heliófita, se presenta en bosques primarios con porte de liana de gran tamaño, con su follaje en el dosel superior, en cambio en bosques de regeneración y bosques secundarios, es de menor tamaño, debido a la mayor luminosidad.

**Acciones de domesticación:** El Jardín Agroecológico Bougainvillea, ubicado en el Caribe de Costa Rica inició en el año 1998 un proyecto con financiación de la OEA/AICD, implementando acciones dirigidas a la domesticación y conservación *in situ* de este importante producto forestal no maderero.

A continuación se detallan las actividades.

**Propagación sexual:** La propagación sexual de *A. chica* ha sido poco estudiada ya que por tener el hábito de liana y fructificaciones escasas, no se ha logrado evaluar la germinación de las semillas.

**Propagación asexual:** En el ensayo de reproducción asexual realizado por Groome (1998), los resultados indicaron que a mayor

diámetro mayor número de raíces, sin influir la presencia de hojas y el tipo de sustrato (arena y suelo); siendo entonces los factores más relevantes el número de nudos por estaca y la madurez fisiológica del tallo.

En los ensayos realizados en el Jardín Bougainvillea, se determinó que de la utilización de estacas leñosas de entre 1 y 2 cm de diámetro, se logra obtener entre un 85 y un 92 por ciento de éxito en el enraizamiento de estacas.

**Manejo agroecológico:** Sistema agroecológico, es el manejo de *A. chica*, sobre soportes vivos, que se basa en criterios agroecológicos de manejo de luminosidad (sistema de barbacoa), su manejo es favorecido al tener un comportamiento de especie heliófita, la capacidad de adaptación silvestre a suelos con bajo pH (3,5-5), y a la capacidad de responder a prácticas silviculturales (poda).

En 2002, Medrano determinó que entre tres coberturas de vegetación, el bosque secundario bajo presenta una mayor producción de peso seco de hojas.

Por lo tanto, el adecuado manejo de la iluminación y de los soportes son los principales elementos a considerar para obtener los mejores rendimientos de hojas al implementar acciones de cultivo agroecológico.

**Manejo diversificado del bosque:** Dentro de la iniciativa del manejo diversificado del bosque, el hecho de que la especie responda a claros y/o aperturas del dosel, a sucesiones secundarias tempranas, donde existe disponibilidad de luz, hace que la misma sea ideal para el manejo en áreas de producción con especies arbóreas.

**Cosecha y recolección:** La primera cosecha se realiza cuando el individuo ha alcanzado un diámetro ( $d_{0.5}$ ) de 1,5 cm (diámetro mínimo de cosecha), ya que son plantas productivas que pueden ser manejadas en forma sostenible.

La hoja deshidratada presenta una coloración marrón.

**Conclusión:** El Jardín Agroecológico Bougainvillea ha dado importantes aportes para su conservación *in situ*, en los bosques tropicales y en acciones de manejo agroecológico para la cosecha de hojas para la industria de extractos naturales y para disminuir la cosecha de poblaciones silvestres. [Aportación hecha por Rafael A. Ocampo S., Jardín agroecológico de plantas medicinales, Bougainvillea S.A., Apartado Aéreo. 764-3100, Santo Domingo, Heredia, Costa Rica. Correo electrónico:

quassia@racsa.co.cr; www.bioextractos.com]



### Brazil nuts in Peru: a lot of nuts, a lot of noise

The Brazil nut (*Bertholletia excelsa*), despite its name, is not exclusive to that country and, contrary to common sense, the main producer is Bolivia. The nut grows naturally in the humid forests of Bolivia, Brazil and Peru and comes from one of the highest trees in the tropical Amazon region. Curiously, the locally named Brazil nut is known in this country under the name of "castaña de para" while in Bolivia is identified as "castaña del beni".

The Brazil nut has a very dynamic demand globally, which has risen with the increased consumption of healthy products. Also, considering that this product is an excellent source of selenium, magnesium and thiamine and is full of proteins and carbohydrates, it constitutes an ideal diuretic food and a medicinal option for ear infections.

Taking advantage of this trend, Peruvian exports of Brazil nuts are expanding to new markets, such as Hong Kong and Viet Nam, in addition to the traditional list of countries such as the United States of America, the United Kingdom and Canada, which together account for almost 92 percent of Peru's current exports.

Between January and September 2007, the volume of exported Brazil nuts grew by 4.7 percent, overcoming the barrier of US\$10 million. Even though the United States of America is already the main market for this product, it is important to notice that because of the preferences of the Peru Trade Promotion Agreement (PTPA) that will enter into force in January 2009, Peru faces the opportunity of increasing its sales to this market, using the preferential access.

On the other hand, given the fact that Peru exports Brazil nuts in a primary state, The country also faces the challenge of selling these products with greater transformation. So, Peru could sell nuts without shells and



*Bertholletia excelsa*

toasted, packed for snacks or to be used in chocolates, sweets and bakery products in general. Additionally, it is possible to explore the hidden potential of this product for the cosmetic industry as an input for oils, make-up and beauty products.

It is evident, therefore, that not only does Peru have a wide potential to expand its sales to this market, but it also has the opportunity to increase the value of exported products and obtain greater profits that may give an extra impulse to the generation of more and better jobs for Peruvians. [Source: Living in Peru [Peru], 15 July 2008.]

**Europe's chestnut *Castanea sativa* forests**

In past centuries, for people living in Europe's forested areas, which then included much of the Mediterranean's shoreline, forests of the chestnut *Castanea sativa* were very important. These sweet chestnut forests extended from the mountainous uplands of Portugal and Spain, through France and into northern Germany, the west coast of Italy, and throughout central Europe as far as Turkey, and provided an important source of livelihood. In previous times, chestnuts were harvested and dried, milled into flour, or used whole with other foods, providing an excellent source of protein and carbohydrate-rich nutrition. When chestnut trees flowered between June and July, they provided abundant nectar and pollen forage for bees, from which a valuable chestnut honey is harvested with a dark colour, a fruity scent like over-ripe apples and a strong, slightly tannic flavour.

The chestnut forests provided a labour-intensive, slow-maturing harvest – the trees take 20 years to bear chestnuts, but then remain productive for a hundred years or more. Quick-growing staples such as potatoes, maize and beans eventually replaced the chestnut crop. This left the forests, where chestnuts remained untended and vulnerable, no longer valued as providers of food and income. Equally at risk were the additional crops the forest supported, including the honey produced by the forest's indigenous *Apis mellifera* honeybees, as well as valuable fungi such as chanterelles and truffles.

In recent years, new harvesters have arrived in some of these forests, often escapees from urban life, who are commercially educated and aware of the need for the forests to create a livelihood. New industries have developed, using local labour and expertise to harvest the chestnuts and market them with modern methods of

processing and packaging. Invisible earnings include a sustainable industry to assist the survival of smallholding communities in danger of losing their livelihoods, in addition to fine harvests of forest fungi, and the top value chestnut honey. [Source: *Bees and their role in forest livelihoods*, FAO Non-Wood Forest Products series 19 [in press].]



*Castanea sativa*

**Maya nut**

Maya nut (*Brosimum alicastrum*) or Ramon, Ojoche, Masica, Ujuxte, Ojushte, Ojite, Ash, Ox, Capomo, Mojo, and Breadnut is a delicious, nutritious, abundant nut from neotropical rain forest trees that provided a staple food for pre-Columbian hunter gatherers. Maya nuts are exceptionally nutritious, providing high-quality protein, calcium, iron, folate, fibre and vitamins A, E, C and B.

Unfortunately, knowledge about Maya nuts has decreased as globalization, export crops and deforestation negatively impact indigenous cultures and the forests that sustain them. As a result of this loss of indigenous knowledge, people cut Maya nut trees for firewood and burn forests to plant maize, beans and other crops. The Maya nut tree is in danger of extinction throughout its range, a situation that threatens the food security of both human and animal populations.

The Equilibrium Fund's Maya Nut Program is working to rescue lost traditional knowledge about the tree for food, fodder, and ecosystem services. Since its inception in 2001, more than 8 000 women have been trained from 450 communities in Honduras, Nicaragua, Guatemala, El Salvador and Mexico. The programme has resulted in the conservation of more than 400 000 ha of Maya nut forests and the planting of more than 800 000 new seedlings. The programme

focuses on women as the caretakers of the family and the environment, and addresses key factors for sustainable livelihoods – sociocultural, environmental and economic – by creating leadership, educational and economic opportunities for women and girls.

Our newest programme, "Healthy kids, healthy forests" (Bosques sanos, niños sanos) aims to provide Maya nut-based school lunches to rural children. Starting in Guatemala in 2008, we are feeding 8 124 children from 46 communities in the Petén region of Guatemala. These communities are planting more than 300 000 new Maya nut trees as "food forests" to sustain the programme in the future. [Source: Rainforest Alliance. 2008. *Project profile: Maya nut (Brosimum alicastrum): an ancient food for a healthy future*. New York, United States of America.

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**FOR MORE INFORMATION, PLEASE CONTACT:**  
**Erika Vohman, Project Director, Equilibrium Fund,**  
**PO Box 2371, Crested Butte,**  
**Colorado 81224, United States of America.**  
**E-mail: [info@theequilibriumfund.org](mailto:info@theequilibriumfund.org);**  
**<http://theequilibriumfund.org/> or <http://eco-index.org/search/results.cfm?projectID=1181>**  
**(Please see page 35 of Non-Wood News 16 for more information.)**



**Sacha Inchi: the largest vegetable source of Omega and antioxidants in the Peruvian Amazon**

Sacha Inchi (*Plukenetia volubilis* L.), commonly known as peanut mount, Sacha peanut or peanut of the Inca, is a native plant of the Peruvian Amazon. Utilized by indigenous peoples for centuries, Sacha Inchi was also cultivated on the Peruvian coast in pre-Hispanic times. A shrub climber that prefers warm climates and adapts to clay and acidic soils, Sacha Inchi is originally from Central America but is also currently found in the departments of San Martin, Ucayali, Huanuco, Amazonas, Loreto and Madre de Dios in Peru. In the wild, Sacha Inchi grows at the edge of secondary forests, in sugar-cane fields and on fences and is even found in platanales and perennial crops.

In rural areas of San Martin, Peru, residents appreciate the nutritional value of Sacha Inchi seeds. Boiled or roasted, these seeds are used in the preparation of various traditional dishes including *inchicapi*,

pepper *sacha inchi*, *cutacho*, butter *sacha inchi*, *inchi cucho*, *tamales* and nougats. Indigenous women from the Mayorunas, Chayuhuitas, Campas, Huitotos Shipibos, Boras and Yaguas ethnic groups mix flour with the oil of the Sacha Inchi to create a revitalizing and rejuvenating skin cream. Native Secoyas, Handosas, Amueshas, Cashibos, Dapanahuas and Boras eat toasted Sacha Inchi to regain strength during labour-intensive work. Rubbing the oil on to their bodies also helps to relieve their rheumatic and muscle pain.



Many believe that Sacha Inchi oil is superior to olive, sunflower, soybean, corn, palm and groundnut oils for domestic, industrial, cosmetic and medicinal uses. Sacha Inchi, a major source of Omega, a fatty acid essential for human life, contains Omega 3 (48 percent), Omega 6 (36 percent), Omega 9 (9 percent), protein (33 percent) and antioxidants (50 percent). Sacha Inchi is believed to boost energy, clear the bloodstream and help to transport nutrients to cells.

Production begins after 6.5 months of transplantation, with first-year yields averaging from 0.7 to 2.0 tonnes/ha. Sacha Inchi can be cultivated with cover crops, reaching ages of up to ten years. For example, Puerto Inca had an increase in production from 1 200kg/ha/year to 5 000kg/ha/year with a value of US\$10 062.50 ha/year.

Sacha Inchi oil has won the Seed Oils of the World contest held in Paris in both 2004 and 2006 along with two other awards for technological innovation in its extraction. It also shows great potential for the production of biodiesel.

Sacha Inchi oil is used widely in the countries to which it has been exported, and is becoming better known and appreciated in Peru. Now it is found in major supermarket chains and other shops in Lima in addition to clinics and homeopathic stores.

Given the importance of this crop, it is vital to conduct further research in agricultural management, genetic improvement, integrated pest management, disease and

agroindustry, so that improved varieties may be obtained to compete better in both the domestic and international oil industry markets. (Contributed by: Joe Sixto Saldaña Rojas, Cooperación para el Desarrollo de la Amazonía (CODEA), Calle César Calvo de Araujo 2035, Iquitos, Peru. E-mail: codea-iquitos@hotmail.com or forest\_boy23@yahoo.es)

## SHEA BUTTER

### Le karité, l'or des femmes

Beurre aux nombreuses vertus, surnommé «l'or des femmes», le karité est un secret de beauté que les femmes africaines se transmettent depuis des millénaires. Aujourd'hui, avec le développement du commerce équitable et du bio, il est devenu la nouvelle coqueluche de l'industrie cosmétique.

Grand héritage de l'Afrique, l'arbre à karité pousse à l'état sauvage essentiellement dans les régions boisées d'Afrique de l'Ouest et Centrale. Sa longévité qui peut atteindre 300 ans et sa taille de plus de 15 mètres en font un arbre majestueusement prolifique.

La fabrication artisanale du beurre de karité est une affaire de femmes avant tout; elles se regroupent pour les récoltes de la mi-juin à la mi-septembre. Il faut savoir que pour obtenir 20 kg de beurre de karité 100 kg d'amandes sont nécessaires. De cette récolte naît un échange commercial entre les femmes des groupements et certaines marques de cosmétiques.

Chaque opération est réalisée avec soin en respectant la qualité et la nature du produit; de ce fait, chaque principe actif reste intact. On prend l'amande qui se trouve à l'intérieur de la noix que l'on fait sécher, concasser, torrifier et enfin moulin. La poudre est ensuite pilée et l'on obtient alors une pâte que l'on mélange à de l'eau bouillante. Il en ressort à la surface toute l'huile et les impuretés sont déposées au fond de la cuve. On retire cette huile que l'on fait cuire. Une fois solidifiée, elle deviendra le fameux beurre de karité que l'on vénère tant.

Adulé pour ses vertus protectrices et adoucissantes, le beurre de karité est le remède à toute peau en mal d'hydratation et de luminosité. Les cosmétologues l'ont bien compris en le déclinant à la perfection en crème pour le corps, shampoing, baume pour les lèvres, etc.

Bien qu'il soit utilisé pour la peau, les cheveux ou dans l'alimentation en tant que substitut du beurre de cacao, le karité n'en

reste pas moins un produit 100 pour cent végétal, naturel et bio. Avec l'engouement du commerce équitable, il est en passe de devenir le produit de soin incontournable à avoir dans sa salle de bain. Utilisé à tout âge, il demeure le meilleur allié des peaux sèches pour ses vertus hautement hydratantes et régénérantes. Adieu, les sensations de tiraillement pendant les frimas car il procure confort et bien-être et laisse une peau douce et satinée.

Fort de ses vitamines A (anti-âge et anti-inflammatoire), D (calmante), E (antioxydante et nutritive) et F (hydratante), le karité renferme de nombreuses propriétés qui apportent souplesse et élasticité à la peau: adoucissantes et protectrices notamment pour les cheveux, antideséchantes et hydratantes en prévention de la sécheresse cutanée, réparatrices et cicatrisantes et, enfin apaisantes en cas d'allergies telles que les rhumes de foin. Le karité favorise également le renouvellement cellulaire. (Source: *Sud Quotidien*, Sénégal, 16 juillet 2008.)

### Ghana's local shea butter industry to be enhanced

The United Nations Development Programme (UNDP) in collaboration with Africa 2000 Network held a stakeholders' workshop to empower rural women in northern Ghana to boost the local shea butter industry. The project beneficiaries would be trained under the Local Level Integrated Information System (LIIS), a component of the Sustainable Rural Livelihoods Project (SRLP) of UNDP.

Mr Shigeki Komatsubara, UNDP Deputy Resident Representative in Ghana, said the LIIS model provides critical information services to local shea butter producers through the development of an exchange platform, using the Development Information Portal. "The portal is expected to provide a one-stop shop for obtaining development

### SHEA 2009: OPTIMIZING THE GLOBAL VALUE CHAIN

An international meeting on shea butter *Shea 2009: Optimizing the Global Value Chain* will take place in Ouagadougou, Burkina Faso from 25 to 27 March 2009. (Please see page 62 for more information.)

information packaged to enhance rural development implementation of Community Action Plans (CAPs)", said Mr Komatsubara.

Mrs Christy Ahenkora-Banya, head of the SRLP unit of UNDP, Ghana, said the project would identify the marketable quality of shea butter and set up the ideal production environment for local women's producer groups. It would explore new markets for shea butter sales promotion, provide business management skills for local women's producer groups and transmit production skills among local women processors.

The ultimate goal is to empower women in northern Ghana and alleviate their acute poverty through enhancing the viability of the local shea butter industry as sustainable business.

The Africa 2000 Network, the implementing partner, would be responsible for the transmission of skills and knowledge in shea butter production among local processors when the project is implemented. [Source: *Modern Ghana* [Ghana], 16 August 2008.]

 **SNAKEROOT (*RAUVOLFIA SERPENTINA*)**

**Snakeroot endangered across Asia**

Like other wild plant species, snakeroot or *Rauvolfia serpentina*, is an important medicinal tool for many people in the Asia region. In India, *R. serpentina* has been used for centuries to treat anxiety, psychosis, schizophrenia, insomnia and epilepsy. In Nepal, *R. serpentina* is valued for its curative powers against hypertension, depression, memory loss and other mental and physical disorders. *R. serpentina* is also used as a traditional medicine in China, Bangladesh, Myanmar and Thailand.

Various publications and reports contradict one another regarding the harvesting quantities and market sizes of *R. serpentina*, yet its use in pharmaceuticals, largely in the Chinese medicine sector, has considerably increased since the 1950s. *R. serpentina* is now recognized as endangered in several countries across the region such as India, Bangladesh and Viet Nam. Yet little information is available regarding its status in range countries, most crucially those believed to be involved in the international trade of the species, including Thailand and Myanmar where *R. serpentina* is considered "vulnerable". Furthermore, CITES authorities in Myanmar believe that a significant amount

of illegal trading is occurring, especially as a result of the long borders the country shares with China and India.

Despite apparent efforts to cultivate *R. serpentina* commercially in India and Nepal, little evidence proves that this cultivation is satisfying a significant portion of internal and international demand for the species. As the status of *R. serpentina* remains in question, urgent action is required to clarify the source and quantity of traded specimens at all levels and to develop and enforce measures to ensure that wild harvests and trade are maintained within sustainable levels. [Source: T. Mulliken & P. Crofton. 2008. *Review of the status, harvest, trade and management of seven Asian CITES-listed medicinal and aromatic plant species*. Bonn, Germany, Bundesamt für Naturschutz.]



*Rauvolfia serpentina*

 **STEVIA**

**FDA may approve stevia-based sweeteners**

Chicago. The United States Food and Drug Administration (FDA) may approve zero-calorie sweeteners derived from a shrub called stevia (*Stevia rebaudiana*), analysts say.

Major beverage companies – PepsiCo Inc. and Coca-Cola Co. – want to market stevia-sweetened products once the sweetener gets approval, the *Chicago Tribune* said. Agribusiness giant Cargill Inc. already has a stevia-based sweetener in grocery stores and Chicago-based Merisant Co., maker of the popular sweetener Equal, will soon do the same, the newspaper said.

But some public watchdogs, including the Center for Science in the Public Interest, are raising concerns about potential cancer-causing properties of stevia. The centre is urging the FDA to do more testing before granting approval, the *Chicago Tribune* stated.

Native to South America and already used as a sweetener there, Japan developed stevia-based sweeteners several decades ago and Australia has recently

approved it. Stevia sweeteners are still banned in much of Europe.

As a sweetener, stevia developed an unpleasant liquorice taste that researchers have had trouble erasing, the *Chicago Tribune* said. [Source: United Press International [United States of America], 30 November 2008.]

**Finlays Kenya in stevia venture**

Outgrowers are set to benefit from a move by private agricultural firm Finlays Kenya to grow 5 000 ha of stevia whose sap is used for medicinal and food flavouring.

Finlays is embarking on the project in partnership with PureCircle – a Malaysian sweeteners production firm – which will inject KSh1.2 billion (US\$20 million) into the joint venture. Finlays will also be refining the extract derived from stevia and has plans to put up an extraction plant. The project provides a diversification opportunity for Kenyan farmers reeling from declining yields and earnings under monoculture cash crop systems and rising costs of inputs such as fertilizers.

The company intends to grow stevia within its own estates first and then roll it out to the smallholder sector, once it has the technical expertise. Finlays expects the project to "create several hundred high-end jobs".

The joint venture with PureCircle – which has most of its production activities in China and Malaysia but incorporated in Bermuda – goes by the name JVCo. It will be majority-owned by PureCircle but the local firm has the option to hold the majority of 51 percent in the coming years.

PureCircle's main concern is stevia, a non-caloric herb native to Paraguay that has been used as a sweetener and flavour enhancer for centuries. Demand for the commodity is rising because of its natural sweetener qualities as opposed to its synthetic rivals. An extract from the stevia leaf, using a patent-protected process, is over 100 times sweeter than sugar.

Of the US\$20 million that PureCircle is putting in Kenya, an estimated US\$15 million has been allocated to the crude stevia extraction plant, and the balance to the plantations and associated working capital. The joint venture will own both the stevia plantations and the extraction plant. PureCircle will have exclusive rights to acquire all stevia extracts and, or, dry stevia leaves produced by JVCo for a period of seven years with renewable options thereafter. [Source: *Business Daily Africa* [Kenya], 23 July 2008.]

## TRUFFLES

### Endangered truffles set to be reared in test tubes

French scientists will try to create black truffles in test tubes in an attempt to revive an increasingly endangered industry. The French region of Corrèze is to sign an accord with key organizations in the industry to unlock the secrets of the Périgourd truffle.

Known to connoisseurs as “black diamonds”, truffles, which are usually found growing on the roots of trees, can sell for up to £860/kg. France produced 1 000 tonnes of Périgourd truffles a year at the start of the last century, but production has fallen to 40–50 tonnes a year.

In the three-year project, scientists will culture cloned truffles with baby trees in test tubes. Once established, tree and truffle will be planted and allowed to mature naturally. The researchers hope to establish which aspects of the environment are linked to truffle growth. [Source: The Times Online, [United Kingdom], 4 December 2008.]

### Australian truffle industry set for rapid growth

Australian truffle production could grow to ten times its current level by 2013, but market development and further research will be needed to ensure the industry has a long-term future. These are some of the conclusions of a stocktake of the industry presented by the Rural Industries Research and Development Corporation (RIRDC) at a meeting of the Australian Truffle Growers Association in Victoria.

Research established that production is likely to grow from 800 kg in 2007 (currently worth A\$1.6 million) to between five and ten tonnes in 2013 from existing truffières alone.

The size of mature truffière land is expected to increase from 250 to 600 ha in the same time frame at an average growth rate of over 20 percent/year. [Source: Australian Food, Melbourne [Australia], 28 July 2008.]

### Soggy summer yields bumper British truffle harvest

Our long lamented soggy summer is cause for celebration in some circles. Those in the truffle business cannot believe their luck. This year's wet weather has produced a bumper crop.

Truffle harvests have doubled year by year since 2005 thanks to our rainy summers and experts believe this year's harvest will be even bigger. Nigel Hadden-Paton, who runs Truffle UK Ltd, Britain's first commercial truffle-growing company, said: “The wet weather has been a godsend for us, and it's

very nearly time to harvest our native British summer truffle. The ones we have seen so far this year bubbling to the surface are looking bigger and they are in greater number. We harvested 77–88 lbs in 2005, 176 lbs in 2006 and an amazing 396 lbs in 2007 but we expect to exceed that this year.”

Truffles can command prices of up to £2 500/kg for the most highly prized specimens. [Source: Daily Mail [United Kingdom], 10 September 2008.]

### Italian truffle fetches US\$200 000 at Macau auction

Rome. Defying the economic downturn, an Italian white truffle weighing just over 1 kg sold at an international auction on Saturday for US\$200 000. The prized tuber went for the second year running to Hong Kong-born casino mogul Stanley Ho after an auction held simultaneously in Rome, London, Abu Dhabi and Macau. Last December, Ho bought a 1.5-kg specimen – one of the biggest truffles unearthed in half a century – for a record US\$330 000.

The 1.08-kg truffle – the biggest found in Italy this year – was picked in November in the central Molise region.

Output of white truffles – which are not cultivated and only grow naturally in forests – has fallen in Italy over the past few years, largely because climate change has brought a damaging mix of drought and torrential rains. Scarce supply has pushed prices for normal-sized truffles above €4 000/kg. [Source: Reuters [United States of America], 29 November 2008.]

### The Libyan truffle, fruit of the desert

In some Arab countries, the truffle is known as the earth tree or the earth egg. It is also known as the thunder daughter. Truffle fungus grows in lime land near some desert plants forming a symbiotic association, i.e. a mutually beneficial relationship between them. It grows by itself with no interference, whenever the conditions are suitable for its growth. These conditions consist of a sufficient humidity and a union between the air and lightning; these elements fall down with raindrops and penetrate the soil to make truffles grow.

Truffles grow in spring when the soil is saturated with water. There are several types of truffles, e.g. the desert truffle and the European truffle. However, the desert truffle has a highly nutritional value and grows only in arid regions; it differs from the type that grows in European forests. There are many varieties of desert truffles, including Zobeidi, Khalasi, Jobi and Hober.

Truffles have a highly nutritional value thanks to their minerals, notably iron, proteins, and amino acids, minerals that the body needs and cannot generate. In addition to this, truffles are easily digested.

The Libyan truffle, found in deserts, is one of the best known worldwide. The Al-Hamada Al-Hamra region is considered to be one of the largest regions producing this truffle.

Truffles have been known in the Libyan Arab Jamahiriya since the Roman era, as they were the favourite food of the upper class. Unlike most city people, desert inhabitants know all about truffles and how to extract them from the soil.

Truffles have a lot of benefits: according to medical researchers they are used in treating trachoma, a disease infecting the eye, and can also increase fecundity in both men and women. Because of these benefits, the best varieties of truffle are expensive. The price of some varieties may reach €2 500/kg or more on the market.

The customary variety of this fungus is sold in domestic markets, whereas the average and excellent varieties are exported to the Gulf and to European countries.

Some attempts to cultivate the desert truffle, which grows abundantly in North Africa, have been made recently in Finland by the Libyan doctor and specialist, Salem El Shamkh. He succeeded in producing high-quality truffles in a short period of time.

The experiment concludes that establishing truffle farms in North Africa is possible provided that there is a correct scientific basis. Accordingly, a good and abundant production can be obtained with a production of approximately 200 tonnes/ha/year. The strange fungus might have a high economic value in the near future and could, one day, become a source of revenue. [Source: Alarab online [United Kingdom], 31 July 2008.] ♣



**Enthusiasm is the greatest asset in the world. It beats money, power and influence.**

*Henry Chester*