TARA GUM

Prepared at the 30th JECFA (1986), published in FNP 37 (1986) and in FNP 52 (1992). Metals and arsenic specifications revised at the 57th JECFA (2001). An ADI 'not specified' was established at the 30th JECFA (1986)

SYNONYMS Peruvian carob; INS No. 417

DEFINITION Obtained by grinding the endosperm of the seeds of *Caesalpinia spinosa* (Fam. *Leguminosae*); consists chiefly of polysaccharides of high molecular weight composed mainly of galactomannans. The principal component consists of a linear chain of (1,4)-beta-D-mannopyranose units with alpha-D-galacto- pyranose units attached by (1 6) linkages; the ratio of mannose to galactose in tara gum is 3:1. (In carob bean gum this ratio is 4:1 and in guar gum 2:1.) The article of commerce may be further specified as to viscosity and loss on drying.

DESCRIPTION White to white-yellow, nearly odourless powder

FUNCTIONAL USES Thickening agent, stabilizer

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Soluble in water; insoluble in ethanol

Gel test To an aqueous solution of the sample add small amounts of sodium borate; a gel is formed

Viscosity Transfer 2 g of the sample into a 400-ml beaker and moisten it thoroughly with about 4 ml of isopropanol. Add, with vigorous stirring, 200 ml of water and continue stirring until the gum is completely and uniformly dispersed. An opalescent, moderately viscous solution is formed. (This solution is less viscous than a guar gum solution, but more viscous than a carob bean gum solution when prepared and tested as indicated in the above described test). Transfer 100 ml of this solution into another 400-ml beaker, heat the mixture in a boiling water-bath for about 10 min and cool to room temperature. The solution shows a marked increase in viscosity.

Gum constituents (Vol. 4) Proceed as directed under G*um Constituents Identification*, using galactose and mannose as standards. Galactose and mannose should be present

Microscopic examination Place some ground sample in an aqueous solution containing 0.5% iodine and 1% potassium iodide on a glass slide and examine under a microscope. Tara gum contains groups of round to pear-shaped cells; their contents are yellow to brown.

(Guar gum cells are similar in form but markedly larger in size. Carob bean gum shows long, stretched tubiform cells, separate or slightly interspaced and can be easily distinguished from tara gum.)

PURITY

Loss on drying (Vol. 4)	Not more than 15%
Ash (Vol. 4)	Not more than 1.5%
Acid insoluble matter (Vol. 4)	Not more than 2%
Protein	Not more than 3.5% Proceed as directed under *Nitrogen Determination (Kjeldahl method)* (see Volume 4). The percentage of nitrogen determined multiplied by 5.7 gives the percentage of protein in the sample.
Starch	Not detectable To a 1 in 10 solution of the sample, add a few drops of iodine TS. No blue colour is produced.
Lead (Vol. 4)	Not more than 2 mg/kg Determine using an atomic absorption technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, “Instrumental Methods.”