

Monograph

Reference is made to starch monographs and tests of
European Pharmacopoeia, Fourth Edition (2002)

TAPIOCA STARCH

Amylum Manihot

DEFINITION

Tapioca starch is obtained from the root of the cassava plant
Manihot utilisima, Pohl (Fam. Euphorbiaceae).

CHARACTERS

A very fine white powder practically insoluble in cold water and in alcohol. Tapioca starch does not contain starch grains of any other origin. It may contain a minute quantity, if any, of fragments of the tissue of the original plant.

IDENTIFICATION

- A. Examined under a microscope using equal volumes of *glycerol R* and *water R*, it presents spherical granules with one truncated side, typically 5 µm to 35 µm in diameter, typically having a circular or several-rayed central clefts (Ref. BP).
- B. Suspend 1 g in 50 ml of *water R*, boil for 1 min and cool. A thin cloudy mucilage is formed.
- C. To 1 ml of the mucilage obtained in identification test B, add 0.05 ml of *iodine solution R1*. A dark-blue colour is produced which disappears on heating.

TESTS

pH (2.2.3). Shake 5.0 g with 25.0 ml of *carbon dioxide-free water R* for 60 s. Allow to stand for 15 min. The pH of the solution is 5.0 to 8.0.

Iron (2.4.9) Shake 1.5 g with 15 ml of *dilute hydrochloric acid R*. Filter. The filtrate complies with the limit test for iron (10 ppm).

Foreign matter (2.8.2). Examined under a microscope using a mixture of equal volumes of *glycerol R* and *water R*, not more than traces of cell walls and of cytoplasmic residues are present.

Total protein. Not more than 0.1 per cent of total protein (corresponding to 0.017 per cent N₂, conversion factor: 5.7), determined on 6.0 g by sulphuric acid digestion (2.5.9) modified as follows: wash any adhering particles from the neck into the flask with 25 ml of *sulphuric acid R*; continue the heating until a clear solution is obtained; add 45 ml of *strong sodium hydroxide solution R*.

Oxidising substances (2.5.30). It complies with the test for oxidising substances.

Sulphur dioxide (2.5.29). Not more than 50 ppm.

Loss on drying (2.2.32). Not more than 14.0 per cent (Ref. BP), determined on 1.000 g by drying in an oven at 130 °C for 90 min.

Sulphated ash. (2.4.14). Not more than 0.6 per cent, determined on 1.0 g.

Microbial contamination. Total viable aerobic count (2.6.12) not more than 10³ bacteria and not more than 10² fungi per gram, determined by plate-count. It complies with the test for *Escherichia coli* (2.6.13)