

## Review of Production of Konjac Glucomannan from *Amorphophallus* sp.

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Glucomannan is a major component of various species of the genus *Amorphophallus* belonging to the family Araceae such as *A. konjac*, *A. albus*, *A. bulbifer*, *A. variabilis*, *A. muelleri* etc. This genus is native to mainly tropical regions in South and Southeast Asia, Africa and Polynesia. Glucomannan is obtained from the subterranean tubers of the plants called corms.

Konjac glucomannan (KGM) is a polysaccharide. It is composed of  $\alpha$ -1,4 linked D-mannose and D-glucose residues with reported ratio of 1.6:1. Actually, ratio differs with konjac breeds. There are acetyl groups attaching randomly to C-6 position of the saccharide units along the molecule approximately 1 per 19 sugar residues, and some side chains linking to mannoses by joint C-3.

Glucomannan has been consumed in Japan for centuries in the form of a jellied food called 'konnyaku'. Nowadays, 'konnyaku' is still consumed as a food for health maintenance since it has beneficial nutritional effects for human health. Hence, it is suitable for health food manufacturing and is an important gelling agent for the food industry and also for pharmaceutical industry where it is used for microencapsulation.

Once the corms have been harvested, they will be processed into the form suitable for different applications in the food or pharmaceutical industry. The main steps of processing consist in dehydration, grinding into a powder, polishing of the remaining starch and removal of the impurities. The production of the glucomannan flour from the fresh tubers is carried out by dry or wet milling process. In the dry milling process, the corms are cut into slices and dried by a flow of hot air. This was traditionally carried out by sun drying but given quality losses in this process, it has been replaced by mechanical dryers. Dried chips ground into a powder using a turbo milling system incorporating air classification. In the wet drying system the corms are blended with ethanol solution leading to the extraction of high-degree purified glucomannan.

This paper is reviewing the details of the industrial-scale extraction and the applications of different grades of konjac glucomannan flour.

Keywords: konjac glucomannan, wet extraction, dry extraction, microencapsulation