



Production of GALACTOMANNAN FROM MAKAPUNO for Food and Industrial Applications



Fig.1. Large-scale production of Makapuno galactomannan

Makapuno, a mutant coconut, is rich in galactomannan as compared with the normal coconut. It makes the Makapuno meat soft, fluffy and gelatinous, and the water highly viscous. Galactomannan, also called gum, is a non-starch water-soluble polysaccharide. A process of extracting galactomannan applicable to the commercial production of this compound has been developed (Fig. 1).



Fig. 2. Powdered Makapuno galactomannan

Makapuno galactomannan in powder form can be considered as a natural and healthy food additive (Fig. 2). It has the functional properties of a thickener, binder, extender, gelling agent, emulsifier and stabilizer. It can serve as a dietary fiber supplement and can be made into edible/biodegradable film (Fig. 3) applied to foods as wrapping to extend the shelf life and improve the foods' nutritional value as well. With the increasing demand for plant-derived products, the Makapuno 'gulaman' (Fig. 4) can be a vegetarian alternative for animal-based gelatin.

Fig. 3. Edible film

The biodegradable film can be impregnated with medicine and used as gauze for wounds. The powder form can be used as thickener in toothpastes, as binder in tablets and can be made into soft gel capsule.



Fig. 4. Makapuno gulaman

Since galactomannan is a biopolymer with natural hydrating function or moisturizing capacity, it can be a component of several cosmetic products such as facial cream, hand sanitizer, body lotion, shampoo, hair conditioner, etc.