

RAPID ASSAY AND DETECTION OF CARBOHYDRATES IN SAMPLES USING MOLECULAR MARKERS

Tech ID: 18169 / UC Case 1991-033-0

ABSTRACT

This Invention employs monoclonal antibodies and direct gelling probes as molecular markers specific for gelling and nongelling parts of plant and bacterial carbohydrates.

This invention describes a rapid assay which can detect these carbohydrates and analyze their composition in very small samples. The sample, such as ice cream or hamburger, is blotted onto a membrane, reacted with the molecular marker and then visualized with a marker detection system. Multiple samples can be analyzed rapidly and efficiently using this method.

Gelling probes have been tested for several carbohydrates: alginate, pectate, carrageenan and agarose. These probes consist of short gelling subunits conjugated to markers. The direct gelling probes bind to the homologous carbohydrate in the sample on the blot only in the presence of the appropriate gelling ion or after a specific thermal change, depending on the specific carbohydrate system. The direct gelling probes can be identified on the filter paper similar to DNA probes.

APPLICATIONS

The assay has several likely applications with regard to carrageenan probes. Commercially-owned carrageenan farms and the processors which buy the raw seaweed from farmers may use the method to test the quality of plants. Fast-growing clones do not necessarily produce carrageenan of good quality. When correlated with commercial quality specifications, the method will allow rapid evaluation of seaweed quality and could help to stabilize source quality. Since only a small piece of a plant is needed to test, the method can also contribute to

Food industry which uses carrageenan as an additive can have several applications for the method. For example, a major fast food chain recently introduced a lower fat, lower cholesterol hamburger patty that has replaced the fat in the meat with water and carrageenan as additive for gelling and texture. This assay can be used to evaluate batch consistency from suppliers and to monitor levels in food product batches. In addition, there is considerable interest in testing the types and levels of carbohydrate additives in competitors' products

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OTHER INFORMATION

KEYWORDS

research tool, antibody

CATEGORIZED AS

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1991-033-0