AGAR FROM AN INTERTIDAL POPULATION OF GRACILARIA SP.

J.N.C. Whyte and J.R. Englar

Fisheries and Oceans Canada, Technology Research Laboratory
6640 N.W. Marine Drive, Vancouver, B.C. Canada V6T 1X2

Introduction

Agar consists of a spectrum of closely related polysaccharides which differ in the extent of substitution of the repeating disaccharide unit (composed of 1,3-linked β-D-galactopyranosyl and 1,4-linked 3,6-anhydro-α-L-galactopyranosyl units) with methoxyl-, sulphate ester-, 4,6-carboxyethylidene-, and glucuronic acid-groups (1,2). Properties of agar, reflecting degrees of substitution, differ in general with generic type; Gelidium species provide rigid gelling agars useful for bacteriological and biomedical applications while Gracilaria species afford soft pliable gelling agars suitable for the food industry (3,4). Nevertheless, quality of agar from the Gracilaria genus also appears to be dictated by season (5,6), environment (7), species (8) and morphotypes (9). This paper presents the seasonal variation in quantity and quality of agar from Gracilaria pseudoverrucosa variant (9), an assessment of the recoverability of the agar involving an additional acid treatment during extraction, and the possible role of this polymer in the alga's intercellular matrix.

Material and Methods

Gracilaria was collected at monthly intervals in 1975 from the head of Bamfield Inlet, Vancouver Island, at a site consisting of fine sand and mud flats. This intertidal population consisted of a free floating mat of vegetative fragments each 12 cm approximately in length and varying in colour from brown to yellow depending on exposure to light. Agar from monthly samples was extracted with boiling water and isolated by ethanol

Xth International Seaweed Symposium
Printed in Germany