4.8 ± 0.3 vs 5.8 ± 0.4 mM (CA) for glucose; 62 ± 13 vs 159 ± 29 µU/mL (PV) and 35 ± 6 vs 120 ± 25 µU/mL (CA) for insulin. In addition, whatever the time after the meal, the amount of glucose absorbed was significantly lower for the HVP supplemented diet. Over 8 h, glucose absorption balance was significantly lower ($P < 0.05$), accounting for 36 ± 4% (HVP) vs 71 ± 8% (CEL) of starch ingested (180 g). As demonstrated with other soluble viscous fibres (guar gum, pectins), this could be explained by a reduced gastric emptying of starch, or a modified glucose transport process in the small intestine.

Only the highly viscous fibre could modify the blood glucose and insulin response, and reduce glucose absorption balance across the intestine. We conclude that viscosity is a major factor controlling the effect of seaweed fibre added to a high carbohydrate diet.

Effects of sulfated polysaccharides from green seaweeds (ulvans) on the survival, proliferation and differentiation of tumoral colonic epithelial cells (HT-29 and Caco-2). C Bénard [1], B Kaeffer [1], M Lahaye [1], HM Blottière [1], JP Galmiche [2], C Cherbut [1] *(Centre de recherche en nutrition humaine, [1] Inra, BP 1627, 44316 Nantes; [2] Hôpital Laënnec, BP 1005, 44035 Nantes, France).*

Sulfated polysaccharides from edible seaweeds may influence the intestinal mucosa through their polysaccharide backbone, their mineral contents or their sulfate residues. We have studied the biological activity of a sulfated or desulfated xyloglucuronorhamnan, extracted from *Ulva lactuca,* in human cell culture.

Ulvans were characterized by chemical analysis of their components. Biological activities were tested on HT-29 cell survival (neutral red) and proliferation (enumeration) in a growth medium containing or not fetal calf serum, and on Caco-2 cell differentiation by measuring transepithelial resistance and intestinal enzymatic expression.

The desulfatation did not modify the molar ratios of the others components. The survival of HT-29 with 0.5 and 2 g/L of native ulvans for 24 h in media with 0 or 10% of fetal calf serum was studied by a two-way variance analysis. This analysis revealed a positive effect of native ulvans on HT-29 cell survival ($P < 0.0001$) and a negative interaction between ulvans and FCS concentrations ($P = 0.018$). Native and desulfated ulvans at 0.5 g/L improved the HT-29 cells survival (in both medium). The HT-29 cell numbers with native ulvans for 6 days ($7.18 \pm 0.49 \times 10^5$ cells/cm^2) and desulfated ulvans ($7.48 \pm 0.23 \times 10^5$) were superior ($P < 0.05$ by Student's test) to the controls ($5.39 \pm 0.44 \times 10^5$). The differentiation parameters were left unchanged.

In conclusion, ulvans could improve the HT-29 cell survival and stimulate the proliferation of these cells suggesting an effect of the polysaccharide backbone. Labelling of this polysaccharide back-bone, for instance by biotinylation, will help to identify putative binding sites of ulvans onto HT-29 cell membranes.

Involvement of β-elimination reactions in alginate fermentation by human intestinal bacteria. C Michel, JL Barry, M Lahaye *(Inra, BP 1627, 44316 Nantes cedex 03, France).*

Fermentation of alginate, a common food additive, by human intestinal bacteria is typified by a latency phase and by a discrepancy in substrate disappearance and its metabolism into short chain fatty acids (SCFA). To investigate this behaviour, the role of β-elimination reactions, which are generally involved in alginate degradation by marine bacteria, was investigated.