through the digestive tract of patients with a malabsorption syndrome. In addition, our preliminary results show that a 6 h breath $^{13}CO_2$ test could be a valid indirect measurement of overall CHO digestibility carbon from dietary CHO.

Effect of algal fibre supplementation *(Eucheuma cottonii)* on intestinal absorption of glucose and insulin response in the pig. B Darcy-Vrillon [1], P Vaugelade [1], F Bernard [1], C Hoebler [2], F Guillon [2], S Mabeau [3], PH Duee [1] *([1] Unité d'écologie et de physiologie du système digestif, Inra, 78352 Jouy-en-Josas cedex; [2] Laboratoire de technologie appliquée à la nutrition, Inra, 44316 Nantes cedex 03; [3] Centre d'étude et de valorisation des algues, BP 3, 22610 Pleubian, France)*

Although marine seaweed is the source of several phycocolloids used in the food industry (alginates, carrageenan, agars), edible seaweed consumption is low in western countries. Their generally high content in soluble dietary fibre is of nutritional interest, however. As part of a systematic study of their nutritional properties, this work investigated the possible effects of algal polysaccharides on postprandial blood glucose levels and insulin response.

Four Large White pigs (48 kg) were surgically implanted with permanent catheters in the portal vein (PV) and the carotid artery (CA), and with an ultrasonic portal blood flow probe. Eight to 10 days after surgery, each of them received an alternate sequence of test meals (800 g of maize starch + casein) supplemented either with 40 g of algal fibres extracted from *Eucheuma cottonii* (EC, $n = 2$) or with 40 g of purified cellulose (PC, $n = 2$). The meals were given after a 24 h fast. Blood glucose and plasma insulin levels were monitored for 8 h after the meal. Glucose balance across the small intestine was also measured during this period. Then, after adaptation to the supplemented diet (6 days), the pigs were slaughtered at 5 h postprandial, and the digestive contents were sampled for subsequent analysis (stomach residue, intestinal content rheology).

Basal glycemia (3.6 ± 0.2 mM) and portal blood flow rate (30 ± 2 mL.min.kg) were identical for both diets. Portal and arterial glycemia increased following the meal intake, but the maxima reached (mean ± SEM) were significantly lower with EC: 6.7 ± 0.1 vs 8.1 ± 0.4 mM (PV); 4.8 ± 0.1 vs 6.0 ± 0.3 mM (CA). Moreover, glycemia peaked from 40 to 85 min with EC vs at 40 min with PC. In both groups, insulin concentration rose within 30–40 min after the meal; however, it returned more slowly to the basal level with EC diet (after 120 vs 90 min). As for glycemia, the peak levels (mean ± SEM) were significantly lower with EC: 148 ± 17 vs 229 ± 44 µU/mL (PV) and 84 ± 10 vs 153 ± 44 µU/mL (CA). Glucose absorption (mmol/min) was lower with EC in the first postprandial hour, but higher after 120 min. Nevertheless, the glucose absorption balance across the small intestine did not differ for 8 h after the meal, accounting for 46 ± 6% and 41 ± 5% of the starch ingested with EC and PC diets, respectively.

We concluded that the addition of 40 g of carrageenan-rich seaweed fibres to a high carbohydrate meal lowers blood glucose and insulin response as compared to that observed with purified cellulose, without modifying the intestinal glucose absorption balance.

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Kinetics of pancreatic secretion in milk- or soyabean-fed preruminant calves. Preliminary results. G Le Dréan [1], I Le Huërou-Luron [1], JA Chayvialle [2], V Philouze-Romé [1], R Toullec [1], P Guilloteau [1] *([1] Laboratoire du jeune ruminant, Inra-Rennes, 35042 Rennes cedex; [2] Inserm,*