

**YACON (*POLYMNIA SONCHIFOLIA* POEP. ENDL., ASTERACEAE) A POTENTIAL SOURCE OF NATURAL SWEETENERS AND ANTI-DIABETICS**

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Yacon is a herbaceous species reaching 2 m in height and growing naturally in the Andean highlands where it was domesticated. The species has been introduced in other countries, including New Zealand, Japan and United States. In Brazil it is cultivated in the state of São Paulo being commercialized as dried leaves for teas. Their tuberous roots are juicy and sweet being consumed by human in natura as salad. Similarly to other economically important Asteraceae underground organs of yacon accumulate as much as 60 % of the dry mass as fructan of the inulin type  $\beta(2-1)$ , mainly oligomers (GF2 GF16). Fructo-oligosaccharides (FOS) also occur naturally in many vegetables and cereals or they are manufactured from sucrose by a fungal fructosyltransferase, the industrial basis of Neosugar production (Hidaka *et al.*, 1987). The utilization of Neosugar and similar sweeteners in food has increased consistently in the last few years due to their dietary fiber and low caloric attributes (Tokunaga *et al.*, 1989) related to benefic gastrointestinal effects through stimulation of *Bifidobacterium* growth (Hirayama & Hidaka, 1993). Moreover Yamashita *et al.* (1984), showed that the ingestion of Neosugar by non-insulin-dependent diabetics subjects lowered fasting blood glucose. In view of the presence of high amounts of FOS in the tuberous roots of yacon and to numerous accounts of general health improvement by diabetic subjects making use of this source of FOS, the present work aimed to study the composition of FOS in tuberous roots purchased in various local markets. Results were then compared to the analysis of FOS from plants grown under controlled field conditions. Fructans were analyzed monthly in tuberous roots of yacon plants cultivated by vegetative propagation during their complete growth cycle in the field. The results obtained showed that the best time for harvest is 8 months of cultivation, just after flowering, when the proportions of monosaccharides are lower than that of fructo-oligosaccharides (DP 4-6). Oppositely fructans extracted from tuberous roots commercially obtained presented higher proportions of fructose and glucose compared to fructo-oligosaccharides. The differences detected in the various samples analyzed were probably due to storage, age, size and time of harvest of the tuberous roots and point to the importance of controlling these conditions in order to guarantee the presence of high levels of FOS in the commercial product. Because of its high fructo-oligosaccharide contents and sweetening properties, yacon tuberous roots may be used as a dietary, additive in soft drinks, sweets and food. Its potential benefits as therapy for diabetes need further investigation.

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**References**

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