



Issue 23: June, 2025: This e-bulletin is aimed at health professionals, consumers, growers, farmers, packers, processors, distributors, retailers, caterers and others in the plant foods area.

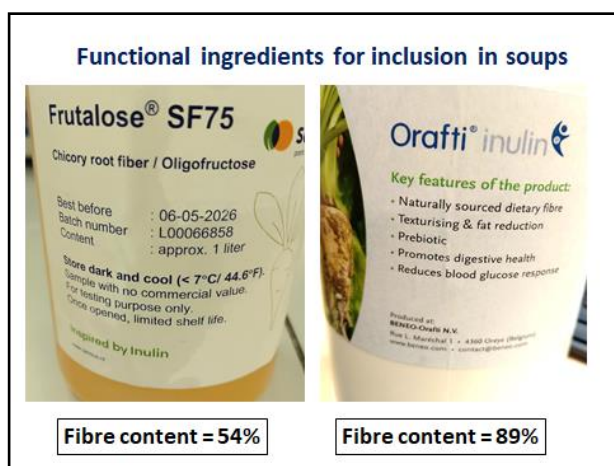
Soup as a Functional Food

Functional foods are defined as whole, fortified, enriched, or enhanced foods that have health benefits beyond that of basic nutrition. Soups, particularly vegetable and meat-based varieties, can serve as functional foods, capable of delivering bioactive compounds such as antioxidants, dietary fibre, vitamins, minerals, essential fatty acids and phytochemicals (Fernandez-Lopez et al., 2020). The nutrient-rich composition of soup makes it a beneficial dietary choice for health and reducing the risk of disease. For example, adding polyphenol-rich extracts, derived from vegetable by-products to chicken soup significantly improved its antioxidant activity, without compromising consumer acceptability (Llorach et al., 2004). Similarly, Alvarez-Jubete et al. (2014) demonstrated that broccoli-enriched soups could serve as effective carriers of sulforaphane when prepared using microwave cooking; this compound has anti-inflammatory and anti-cancer properties. Collectively, these and other findings demonstrate that soup via its adaptability and potential to deliver nutrients, plays an increasingly recognised role as a functional food in various health contexts.

Increasing the fibre content of soup

The potential of soup for increasing the dietary fibre intake of consumers was demonstrated in a recent study conducted by Emily Horan (4th year food science student research project) in cooperation with Adjunct Professor Ronan Gormley of the UCD Institute of Food and Health, University College Dublin. The functional ingredients Frutalose[®] SF75 and Orafti[®]GR were included in two soup samples to produce so-called 'super soups' with a raised fibre content and prebiotic

properties (in the case of Orafti[®]GR). Both Frutalose[®] SF75 and Orafti[®]GR are oligofructoses derived by partial hydrolysis of chicory inulin, albeit to different degrees. Oligofructose from chicory is a polydisperse mixture of linear fructose polymers partly ended by a glucose molecule, coupled by means of β (2-1) bonds. Frutalose[®] SF75 is a liquid oligofructose and has a fibre content of 54%. Orafti[®]GR is a granulated powder consisting mainly of inulin and has a fibre content of 89% on a dry matter basis. There is



extensive literature on EU claims and labelling options for Orafti[®]GR and oligofructose, including bowel function and blood glucose benefits based on inulin and prebiotic properties (Beneo Institute, 2025). Inclusion levels in the soup

samples were 16g/300ml soup for Frutalose® SF75 and 20g/300ml for Orafiti®GR. The inclusions raised soup soluble solids levels and had a small effect on apparent viscosity/consistency. However, spot tests indicated no difference in sensory properties between soup samples with and without inclusions. A health claim of 'source of fibre' (>3%) can be made for soups with Frutalose® SF75 and a 'high in fibre' (>6%) claim for soups with Orafiti®GR at the above inclusion levels. A normal soup portion is circa 300ml, and this would contain 20g of Orafiti®GR based on the above inclusion level. The ability of the human digestive system to tolerate this amount in a 300ml bowl of soup is undocumented. However, the suppliers of Orafiti®GR suggest a possible upper limit of 15g as a single ingestion (Creedon, 2025). Therefore, a possible recommendation would be 4% of Orafiti®GR which amounts to a fibre inclusion of circa 10.7g in a 300ml bowl of soup. This equates to almost half the minimum recommended daily intake of 25g of dietary fibre (Flynn et al., 2011) being delivered in a single food portion which is an excellent outcome. The cost of a 12g inclusion of Orafiti®GR is circa 6 cents (Creedon, 2025).

Conclusions

- The potential of inulin inclusions (Frutalose® SF75 & Orafiti®GR) to increase the fibre content of soups was demonstrated. These soups are functional foods and can be assigned the term 'super soups' with 'source of fibre' or 'high in fibre' health claims.
- Clinical trials are required on human tolerance thresholds of different levels of Frutalose® SF75 & Orafiti®GR inclusion in soup before recommending to catering outlets as a means of increasing consumer fibre intake.
- The tests above on soup as a functional food are a component of a much larger study on quality aspects of soups in three large on-campus restaurants (36 samples) in UCD and also from pubs, restaurants and hotels in the Dublin region (15 samples) (Horan et al., 2025).
- Soup plays a vital role in the circular economy as it can be made using a wide variety of ingredients, including surplus and bruised fruit and vegetables, and also foods approaching their use-by date.

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