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Dairy could mask bitter taste of antioxidants

By Stephen Daniells, 15-May-2009

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Milk could be the ideal functional food matrix for delivery of polyphenolic-rich antioxidant extracts, suggests new research from South America.

Milk and sucrose could both reduce the bitterness and astringency of the polyphenolic extracts, suggesting that *“sweetened dairy products could be interesting carriers for the development of functional foods containing polyphenolic-rich antioxidant extracts,”* wrote the researchers in *Food Research International*.

The days where healthy products were deemed unappetising are coming to an end, and food manufacturers are acutely aware of the need to make healthy products taste good.

Fortifying foods with polyphenols is limited by the inherent bitter taste of the compounds. Polyphenols are antioxidant compounds with health benefits reported to range from improved cardiovascular health, to protection against certain cancers and Alzheimer's.

Data from Leatherhead Food International (LFI) shows that the world functional antioxidants market is increasing year on year by around 3 per cent, and was valued at US\$ 400 million in 2004, and US\$ 438 million in 2007. Europe, the US, and Japan account for 90 per cent of this market.

With flavonoids and polyphenols reported to be 45 per cent of this functional antioxidant market, equivalent to almost US\$ 200 million, it is no wonder that many companies are already offering such ingredients, including Naturex, Burgundy, Chr. Hansen, DSM, Futureceuticals, Danisco, Indena, Frutarom, Genosa, Natraceutical, Cognis, and ADM.

The new research, led by Gaston Ares from Universidad de la Republica in Montevideo, Uruguay, looked at the effectiveness of sucrose, sucralose, polydextrose, and milk to reduce the bitterness, astringency, and characteristic flavour of antioxidant extracts of two Uruguayan native plants (*Achyrocline satureioides* and *Baccharis trimera*).

According to their findings, all four reduced the bitterness, astringency and characteristic flavour of the extracts, but the effectiveness was reported to be highly dependent on the type and concentration of the antioxidant extract being considered, said the researchers.

For *A. satureioides* extracts, Ares and his co-workers report that milk was the most effective inhibitor of the bitterness and astringency. On the other hand, sucrose came out best for inhibition of negative factors associated with *B. trimera* extracts

“Polydextrose was the least effective alternative to reduce the bitterness and astringency of the extracts,” wrote Ares and his co-workers. *“However, it introduced the smallest modifications in the sensory profile of the solutions, as it only slightly increased their sweetness.*

“Furthermore, it could be declared as functional ingredient, which makes it an interesting ingredient to mask unpleasant flavours in functional food products.

“The effectiveness of milk and sucrose in reducing the bitterness and astringency of the extracts

suggest that sweetened dairy products could be interesting carriers for the development of functional foods containing polyphenolic-rich antioxidant extracts,” they concluded.

Source: *Food Research International*

Published online ahead of print, doi:

“Alternatives to reduce the bitterness, astringency and characteristic flavour of antioxidant extracts”

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