

Consumer acceptability of reduced fat foods containing inulin

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Inulin is a food ingredient with application as a fat replacer in processed foods with possible laxative and prebiotic effect (1). We have been studying inulin as a food ingredient to enhance the laxation properties of low fibre diets (2). Here we report studies with cereal, dairy and meat products in which the fat ingredient was partially replaced with inulin to determine whether an untrained panel would find reduced-fat products to be as acceptable as their normal fat counterpart.

Untrained panelists were presented with two coded foods, in random order and asked to score appearance, exterior colour, flavour, texture and overall acceptability. Panelists recorded their responses by placing a mark on a 15cm line scale on which the positive and negative descriptors were located 2.5cm in from the ends. Scores for each characteristic were determined by measuring the distance from the negative (left) descriptor to the mark made by panelists. Results for overall acceptability are presented in the table.

Food	Fat content % w/w based on ingredients		Inulin content % w/w based on ingredients		Overall acceptability score [cm + SD, range 0 (dislike) to 10 (like)] and number of panelists	
	Usual	Reduced fat	Usual	Reduced fat	Usual	Reduced fat
Anzac biscuits	26	10	trace	8	8.8 ± 1.9 (30)	7.0 ± 2.6* (30)
Blueberry muffins	11	6	trace	6	8.7 ± 2.2 (37)	8.0 ± 2.0 (37)
Carrot cake	15	1	trace	9	9.2 ± 1.8 (43)	8.6 ± 2.8 (43)
Chocolate cake	15	5	trace	4	7.8 ± 3.4 (19)	5.0 ± 2.9* (19)
Lemon cheesecake	5	1	trace	7	6.9 ± 3.3 (18)	6.1 ± 2.8 (18)
Frozen dessert	15	2	0	13	8.0 ± 2.5 (32)	6.9 ± 3.2 (32)
Beef sausage	19	6	trace	4	5.8 ± 3.2 (10)	5.6 ± 3.2 (10)

* Significantly different from control $P < 0.05$

Five of the seven reduced-fat foods containing inulin scored highly on overall acceptability. But chocolate cake scored poorly and was less acceptable than its full-fat counterpart. Reduction of fat content in Anzac biscuits lowered acceptability relative to usual, but they were still highly acceptable to panelists. Regression analysis of factors contributing to overall acceptability, ie overall appearance, exterior colour, flavour and texture showed that texture, and to a lesser extent flavour, made the largest and significant ($P < 0.05$) contribution. Inulin can replace significant amounts of fat in processed foods whilst retaining consumer acceptability of low fat products.

1. Ninness KR. Inulin and oligofructose: what are they? *J. Nutr.* 1999;129Supp:1402S-1406S.
2. Hunter W, Jones GP, Devereux H, and Stewart A. The potential of foods containing inulin as laxatives for older Australians. *Aust. J. Nutr. Diet.* 2000;57:95-97.