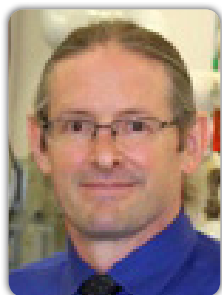


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Martin JT Reaney

University of Saskatchewan, Canada

A portfolio of benefits from flaxseed

Statement of the Problem: Health Canada has approved claims on product labels that relate flaxseed consumption with reduction of blood cholesterol levels and research has also shown that consumption of milled flaxseed lowers blood pressure in hypertensive patients. Effects of flaxseed consumption on health might arise from alpha-linolenic acid, high molecular weight polysaccharides and lignan but contributions from other bioactive compounds are like biologically active orbitides, for example, might contribute to flaxseed (*Linum usitatissimum* L.) effects on both blood pressure and cholesterol. Flaxseed bioactive constituents have never been standardized through breeding. Therefore, it is possible that more potent and less potent flaxseed cultivars might be available. Most studies of the effects of flaxseed and flaxseed products on health do not fully document the flaxseed source or the total portfolio of active ingredients. The purpose of this study is to examine the prospects for expanding flaxseed production and consumption as a source of ω -3 oils; summarize the nutraceutical and functional aspects of flaxseed products; and highlight several new commercial flaxseed products.

Methodology & Theoretical Orientation: While oil is the main driver for production of flaxseed processes that recover oil from seed and refine it for the consumer vary and are specific to the intended use. Settling and filtration may be used for all flaxseed oil but industrial oil used for drying may be more fully refined with additional steps of alkali refining, bleaching, and deodorizing.

Findings: Whole seed products have a portfolio of potentially beneficial compounds but some of the compounds in flaxseed may not be desirable for all consumers. Most notably the high fibre content of flaxseed may not be desirable for individuals that have intestinal difficulties that preclude consumption of large volumes of dietary fibre. Low fibre flaxseed products have been developed for human consumption. Similarly, the inclusion of bioactive cyanogenic glycosides, linatine, lignans, and orbitides in foods may not be compatible with desired health outcomes. It is now possible to obtain flaxseed products that are enriched or highly enriched in omega-3 fatty acids, dietary fibres, lignans, and orbitides.

Conclusion & Significance: New highly enriched products are emerging from the flaxseed portfolio that provide specific consumer benefits. Flaxseed consumer sophistication will align with equally sophisticated new products.

Biography

Martin JT Reaney is a Professor of the College of Agriculture and Bio-resources at the University of Saskatchewan, and is also in association with the Saskatchewan Ministry of Agriculture (SMA) Chair of Lipid Quality and Utilization. The SMA chair is mandated to develop new technology for oilseed processing and producing commercial bioproducts with enhanced value. The commercial activity resulting from this research is intended to generate wealth for the Canadian agriculture sector. His research interest involves exploring orbitides compounds including a range of natural health products, pharmaceuticals and cosmetics, and developing technology to bring these compounds to the market for a broad range of applications. He works with industry and has worked with Agriculture and Agri-Food Canada. He has published over 120 papers in peer-reviewed journals and has presented over 270 papers at conferences. 28 US and 7 world patents have been granted because of his research and several of these have been commercialized. Both the US and Canada have honored him several times with Innovation Awards. He recently formed Prairie Tide Chemicals Inc. to commercialize several recent discoveries of an abundant source of flax compounds.

martin.reaney@usask.ca