

OPPORTUNITIES FOR SOUTH AUSTRALIA IN CAROTENOIDS

Carotenoids are fat soluble substances found principally in plants, algae, phytoplankton, bacteria, yeasts and moulds.

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FUNCTIONAL FOODS

This fact sheet presents a high level summary of the opportunities for South Australia to supply carotenoids to the eight countries analysed through the Functional and Luxury Foods Research Project.



Carotenoids are fat soluble substances found principally in plants, algae, phytoplankton, bacteria, yeasts and moulds. In particular, there is emerging clinical validation of beta-carotene's cancer reducing properties. Australia currently produces carotenoid-based functional ingredients and foods with the domestic market forecasted to have a Compounded Annual Growth Rate of 7.3% by 2020. The most commonly produced carotenoid in Australia is natural beta-carotene which is used as a colouring agent and as a functional ingredient.

CHINA	China's increased focus on antioxidants is driving interest in carotenoid products, however there have not been any approved health claims published in China, resulting in limited perceived value for these products. This is a highly competitive global market, and with concerns regarding intellectual property protection there are concerns regarding duplication. Most carotenoid consumption in China is via functional fortified juices.
HONG KONG	In Hong Kong, there is an emerging industry in carotenoid production with companies such as Lycogac involved in carotenoid extraction. Currently Hong Kong imports the majority of products from the USA. Similar to other functional foods, there is currently growing demand for products fortified with carotenoids.
INDIA	India's carotenoids market is growing rapidly, driven by a growing awareness of antioxidants and a general demand for healthier food options. Algae-based carotenoids are a native Indian industry. Beta-carotene forms the largest segment of India's domestic market and is primarily used in beverages and juices. Other carotenoids are used in the dietary supplements sector, with beverages proving the most popular delivery mechanism, usage in the processed food sector however is still minimal.
INDONESIA	The functional foods market in Indonesia is at a nascent stage, however there is an appetite for functional foods due to concerns regarding food security and malnutrition.
JAPAN	Japan's ageing population is particularly focused on the benefits of antioxidants and their potential health benefits, which is driving consumer interest in carotenoids. However, there is limited domestic production of carotenoids due to the competitive international market. Beta-carotene and lycopene are the two most common variants in the Japanese market.
MALAYSIA	Malaysia's market for carotenoids is underdeveloped at this stage. Given the general acceptance of functional foods across Malaysia, there is considerable future market potential in this area. As yet there is no significant carotenoid manufacturing occurring in Malaysia.
SINGAPORE	Singapore's carotenoid market is currently underdeveloped. There is potential scope for growth in consumer demand as awareness around the health benefits associated with carotenoids increases. Due to current limited demand there is no significant domestic production of carotenoids.
SOUTH KOREA	In South Korea, the market for carotenoids is a subset of the antioxidant market and is a niche segment being driven by concerns about the effect of free radicals on the skin and demand for healthier food options. Beverages dominate usage of carotenoids in functional foods. Similar to the probiotic market, there is strong demand, product development and production capacity in South Korea's domestic market.

OPPORTUNITIES FOR SOUTH AUSTRALIA

South Australia has an opportunity to develop carotenoid containing functional ingredients or finished foods to supply markets across the Asian Pacific region. There are large variances across the markets in relation to the consumption and domestic production of carotenoids. The increasing acceptance of antioxidants as an important dietary supplement and having natural food colouring agents are helping drive the demand for carotenoids across Asian markets.

- Through product development there is potential to enter the Chinese market via carotenoid fortified dairy and baked goods due to very limited competition.
- Currently established demand in the Indian market is mainly through the consumption of fortified beverages, however fortified dairy and confectionery products are an emerging market.

- While beta-carotene makes up around 50% of the market demand in South Korea, there are emerging markets for lutein and lycopene fortified products in beverages and nutraceuticals.
- Malaysia is an emerging consumer of carotenoids with a currently limited, but potentially significant, future domestic supply of carotenoids through the palm oil industry.

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