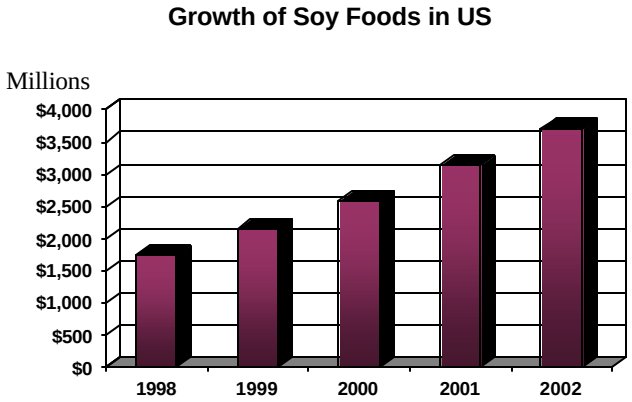
Red Raspberries Add Upscale Flavor to Growing Soy Foods Market

Soybeans, which offer consumers a blend of protein, low fat, and a healthy array of nutrients and beneficial compounds, are giving food product manufacturers access to a market with double digit growth for the past five years. From 1998 to 2002, sales of soyfoods in the United States rose 113 percent, from $1.7 billion to $3.7 billion in annual sales. The market does not show any signs of slowing down: sales of soy foods are expected to hit $6 billion by 2005.[1]



Soybeans provide all eight essential amino acids that can only be obtained through the diet, making it a complete protein. Besides having a higher quality protein, soybeans also have a higher amount of protein than other beans. Soybeans have 35 to 38 percent of total calories coming from protein.

Four years ago the Food and Drug Administration gave food makers permission to put labels on products indicating that foods high in soy protein may help lower heart disease risk. Soybeans also contain a variety of vitamins, minerals and nutrients that are being studied for their ability to prevent cancer.

Soybeans & Berries – Functional Food Leaders

Functional foods, which are marketed for their ability to provide benefits in addition to nutrition have become a $20 billion market and continue to achieve astronomical growth rates. Functional food sales continue to average 25-35 percent growth per year.[2] This demand is

caused, in large part, by the desire of consumers to assume greater responsibility for their own health. Consumers are growing to understand that good health begins with good nutrition. Functional foods provide consumers with a perceived path to better health.

Functional Beverages

As the functional beverage market continues its double-digit growth, soy drinks have laid the foundation. Soy beverage makers have excelled with a variety of smoothies, shakes and other functional drinks that are high in protein. Soy milk remains the most popular soy product, with sales of nearly $700 million in 2002, up from $100 million in 1995. Granted, this is still miniscule compared to the $63 billion soft drink industry, but message that consumers are sending is clear: demand for healthy foods and drinks will continue to grow.[3]

Red raspberry juice concentrate and puree are used in a variety of beverages including, from left: red raspberry juice blend from concentrate, a raspberry-banana soy smoothie, and a dairy-based drinkable yogurt.

The soy foods market is largely driven by "baby boomers who seek foods that promote longevity and good health," Chapman said, adding that soy is increasingly being added to breads, cereals, bars and juice blends.

Development Dilemma

Soy foods, although incredibly healthy, often have to struggle with the perceptions and expectations of mainstream consumers. Shoppers who are new to functional foods want a product that tastes good, above all else. Often, when they first experience soy-based foods, they may find the taste slightly unpalatable and a product with a rather pasty mouthfeel. This occurs because a number of compounds found in soybeans can produce off-flavors and a bitter taste. Other factors, such as the level of solubility and the size of the soy particulate matter can negatively affect taste and texture.[4]

Functional Benefits of Berries

Without fail, manufacturers of soy-based food products, particularly cultured soy drinks and yogurts incorporate red raspberries into their product lines. Certainly, the deep red color and exquisite flavor make red raspberries a logical addition to any product; however, when it comes to soy products, red raspberries offer a wide range of advantages.

One of the main benefits that red raspberries offer soy product manufacturers is the ability to mask many of the off-flavors found in soy products. The low pH of red raspberries, coupled with the their tart flavor are the perfect ingredient for covering up the undesirable notes provided by soy.

Although the flavor industry continues to develop new masking flavors for use with soy, manufacturers of natural, healthy and organic functional foods need to look to more label-friendly ingredients. Red raspberries help hide the off-flavors in a more consumer-friendly way.

Red raspberries are also a logical addition to soy products for their numerous nutritional and antioxidant compounds.

Phytochemicals in Red Raspberries

Phytochemicals	Values
Anthocyanins	20-65 mg/100g
Ellagic Acid	3.39 mg/g dry wt
ORAC Values	24 µmole TE/g
Salicylic Acid	5 mg/100 g
Quercetin	12 mg/100 g
Catechins	0.83 mg/100 g

Salicylic Acid

Salicylic acid is found in red raspberries and is suspected of having the same protective effect against heart disease as aspirin. Aspirin is a closely related compound know to pharmacists as salicylic acid acetate. The therapeutic successes of small daily doses of aspirin to inhibit atherosclerosis suggest the possibility that salicylic acid consumed in foods may provide a similar benefit. A 100-gram serving of red raspberries contains around 5 milligrams of salicylic acid.

Quercetin

Quercetin is a flavonol that works as an anti-carcinogen and an antioxidant. Quercetin has also been shown to reduce the release of histamine and may be effective against allergies. The quercetin content of red raspberries is 12 milligrams per 100 grams of juice.

Catechins

Catechins are flavonols that support the antioxidant defense system. Catechins found in red raspberries may contribute to cancer prevention. The catechins content found in red raspberries is 0.83 milligrams per 100 g.

Anthocyanins

Anthocyanins, which act as pigments to give berries their deep color, are a major component of the phenolic/flavonoid class. This class of compounds is highly correlated with antioxidant activity. It may be one reason why people like colored foods: they may instinctively know they are good for the body. Recent research shows that anthocyanins act as

antioxidants, providing many potential health benefits. Researchers are currently linking anthocyanin activity to improving vision, controlling diabetes, improving circulation, preventing cancer, and retarding the effects of aging, particularly loss of memory and motor skills.

A Complete Package

All of these benefits, when brought together into the same package, make soy-red raspberry products truly stand-out from amongst the competition. Their functional, nutritional and consumer appeal show tremendous growth potential, and should continue to do so as the nation's millions of baby-boomers continue to seek out healthy, flavorful foods.

Soy Berry Beverage

INGREDIENTS	Percent by Weight
Water, filtered	57.20
Red raspberry concentrate, 65° brix	11.00
White grape juice concentrate, 65° brix	10.00
Strawberry juice concentrate, 50° brix	3.00
Soy Milk, Liquid 13.8° NonGMO	15.00
Beverage Grade Flaxseed	2.20
Pectin JMJ, CPKelco	0.30
Mixed Berry Flavor, #01-AF208 WFF	1.30
	100.0%

Processing

1. Add water and flaxseed. Agitate for 5-8 minutes on high-shear/high speed.
2. Add soymilk and mix for one minute.
3. Add pectin or other stabilizer and agitate, under severe agitation, until stabilizer is well dispersed and begins to hydrate. Agitate at medium speed for five minutes. (Add antifoam if needed).
4. Heat to 190°F (C). While blend is heating, add fruit concentrates, acidulants and flavors. Mix gently into solution.
5. Turn off steam. Maintain slow agitation. Check QC parameters: pH – 3.65 (fruit) – 4.35 (for acidified soy beverage). Soluble solids: 17.8° - 18.5° Brix. HOLD TEMPERATURE: minimum 90 seconds.
6. Homogenize: 500/3000 psi.
7. Hot fill. Note: For aseptic fill, a tubular heat exchanger is recommended for heating and cooling prior to filling.

For additional information on formulating soy products with red raspberries, contact:

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