

Editorial



Berry Fruits

This special edition of *Molecular Nutrition & Food Research* focuses on berries and their potential relevance to health and disease prevention. From a botanical perspective, the term “berry” refers to a simple fleshy fruit in which the entire ovary wall develops in to an edible pericarp. Examples include cranberries, blueberries and grapes. However in this edition the more common parlance is used, the term also encompassing edible aggregate fruits with multiple seeds such as strawberries and raspberries which are not strictly berries in the botanical sense.

Edible berries have formed part of the human diet since Neolithic times and many are now widely cultivated. Therefore in many cultures throughout history berries are likely to have been important sources of dietary components now recognised as being essential for health such as fibre, vitamin C and folic acid. Nowadays, berries and berry products make only a small contribution to the complex Western diet. However, increased intakes may be beneficial as numerous epidemiological studies suggest that regular and long-term consumption of fruits and vegetables lowers rates of premature mortality and decreases the risk of developing chronic diseases such as heart disease, stroke and several cancers [1, 2].

Additional health benefits have also been claimed for berries as unlike most other fruit and vegetables they are rich in anthocyanins. These glycosidic-linked flavonoids are responsible for the red to purple colours of the fruits. Several papers in this special edition provide evidence from *in vitro* studies that indicate that several anthocyanins found in berries have a range of potentially anti-cancer and anti-heart disease properties including antioxidant activity, amelioration of DNA damage and anti-inflammatory responses. If such effects also occur *in vivo*, berries may have a particularly important putative role in the prevention of chronic diseases. However, any health benefit of anthocyanins depends on their bioavailability. Consequently, the impor-

tant and contentious issue of the degree to which they are absorbed from the diet and subsequently metabolised are also discussed in several papers in this special edition.

In addition to anthocyanins, cranberries contain procyanidins which may prevent uropathogenic bacterial adhesion. Several papers in this volume provide converging evidence from epidemiological, mechanistic and intervention studies to support the view that consumption of cranberry juice can help prevent the occurrence of urinary tract infections. Understanding the exact mechanisms behind the antibacterial and indeed anti-viral properties of the cranberry is an important area for future research.

Increasing berry intake in the population requires coordination of many disparate interests such as growers, food processors and health promotion agencies. An example of such a successful strategy is the Finnish approach whereby berry consumption has markedly increased in response to diet and lifestyle initiatives [3]. Similar initiatives in other countries such as the Scottish “Berry Project” (<http://www.berryscotland.com/>) are being developed in order to increase the production, sales and consumption of soft fruits as part of the attempt to facilitate the reduction of chronic diet related disease. However, such policy initiatives need the credibility of robust scientific evidence, good examples of which can be found in this edition.

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Prof. Garry G. Duthie
Guest Editor

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