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Berry Fruits: Compositional Elements, Biochemical Activities, and the Impact of Their Intake on Human Health, Performance, and Disease

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Abstract:

An overwhelming body of research has now firmly established that the dietary intake of berry fruits has a positive and profound impact on human health, performance, and disease. Berry fruits, which are commercially cultivated and commonly consumed in fresh and processed forms in North America, include blackberry (*Rubus* spp.), black raspberry (*Rubus occidentalis*), blueberry (*Vaccinium corymbosum*), cranberry (i.e., the American cranberry, *Vaccinium macrocarpon*, distinct from the European cranberry, *V. oxycoccus*), red raspberry (*Rubus idaeus*) and strawberry (*Fragaria* × *ananassa*). Other berry fruits, which are lesser known but consumed in the traditional diets of North American tribal communities, include chokecherry (*Prunus virginiana*), highbush cranberry (*Viburnum trilobum*), serviceberry (*Amelanchier alnifolia*), and silver buffaloberry (*Shepherdia argentea*). In addition, berry fruits such as arctic bramble (*Rubus articus*), bilberries (*Vaccinuim myrtillus*; also known as bog whortleberries), black currant (*Ribes nigrum*), boysenberries (*Rubus* spp.), cloudberries (*Rubus chamaemorus*), crowberries (*Empetrum nigrum*, *E. hermaphroditum*), elderberries (*Sambucus* spp.), gooseberry (*Ribes uva-crispa*), lingonberries (*Vaccinium vitis-idaea*), loganberry (*Rubus loganobaccus*), marionberries (*Rubus* spp.), Rowan berries (*Sorbus* spp.), and sea buckthorn (*Hippophae rhamnoides*), are also popularly consumed in other parts of the world. Recently, there has also been a surge in the consumption of exotic "berry-type" fruits such as the pomegranate (*Punica granatum*), goji berries (*Lycium barbarum*; also known as wolfberry), mangosteen (*Garcinia mangostana*), the Brazilian açaí berry (*Euterpe oleraceae*), and the Chilean maqui berry (*Aristotelia chilensis*). Given the wide consumption of berry fruits and their potential impact on human health and disease, conferences and symposia that target the latest scientific research (and, of equal importance, the dissemination of this information to the general public), on the chemistry and biological and physiological functions of these "superfoods" are necessary.