



**Issue 18: August, 2023:** This e-bulletin is aimed at health professionals, consumers, growers, farmers, packers, processors, distributors, retailers, and others in the plant foods area.

## **Blackcurrants & blackberries - - 'black jewels' of Irish soft fruit**

Blackcurrants and blackberries can be described as the forgotten fruit of Irish consumers in the context that our grandparents frequently made jams from these fruit whereas nowadays this is a comparative rarity. The excellent practice of gathering blackberries from hedgerows has largely disappeared but perhaps the current better awareness of biodiversity may awaken this tradition. Blackcurrants and blackberries are the black jewels of Irish grown soft fruit because they are a rich source of beneficial bioactives. The intense rich colour of their jams is testament to this as are the pigmented fingers and lips of those gathering and eating wild blackberries.

### **Blackcurrants**

Blackcurrants (*Ribes nigrum*) are grown extensively in Europe with Poland (120kt), Ukraine (27kt) and the UK (13kt) the largest producers. They are also grown in Ireland and a quick internet search will pinpoint a number of outlets where they can be obtained. Cortez & Gonzalez de Mejia, (2019) have reviewed the chemistry, processing and health benefits of blackcurrants. They contain flavonoids, specifically anthocyanins which give the rich purple colour. Anthocyanins have potent antioxidant, antimicrobial, and anti-inflammatory properties and have the potential to improve overall human health particularly in diseases associated with inflammation and regulation of blood glucose. Composition can vary widely depending on cultivars, growing conditions and other factors. Ballpark composition data (g/100g) are: 15.4 (carbohydrate), 1.4 (protein), 0.4 (fat) and 82g (water). Vitamins and minerals (mg/100g) are 181 (vitamin C), 322 (potassium) and 55 (calcium) (USDA, 2018a); energy content/100g is 63kcal. Notable among these data is the vitamin C content which is 3.6 times higher than oranges (50mg/100g) and is reflected in the plethora of blackcurrant-rich drinks on the market. However, other nutrients and especially anthocyanins (as mentioned above) are powerful antioxidants in common with vitamin C. Šimerdová *et al.*, (2021) evaluated anthocyanin profiles in various blackcurrant cultivars over a 3-year period and found that anthocyanins derived from the anthocyanidins cyanidin and delphinidin represent 97–98% of total anthocyanins in blackcurrants. Cultivars with the highest average total anthocyanin content were Ben Gairn (294), Ceres (281) and Ometa (269mg/100 g). There is extensive processing of blackcurrants especially for drinks which are promoted on the basis of their vitamin C and anthocyanin contents. Woodward *et al.*, (2011) showed no significant loss in anthocyanin content during blackcurrant processing i.e. pressing juice, pasteurisation, decantation, filtration and concentration. This is particularly pertinent considering current commercial interest in anthocyanin-derived phenolic acids and their health-related benefits. Pasteurisation results in minimal losses in vitamin C content in most fruit juices

## Blackberries

Blackberries (*Rubus* spp) grow abundantly on the hedgerows in Ireland and their larger cousins are also cultivated commercially. Ballpark composition data (g/100g) are: 9.6 (carbohydrate), 1.39 (protein), 0.49 (fat), 5.3 (dietary fibre) and 88g (water). Vitamins and minerals (mg/100g) are 21 (vitamin C), 162 (potassium) and 20 (calcium); energy content/100g is 43kcal (USDA, 2018b). It is likely that these data are for cultivated blackberries as wild blackberries have a lower water content of circa 82% (Clarke, 2019). A Serbian study showed that wild blackberry varieties had higher extraction yields, higher total polyphenolic and flavonoid contents, and possessed stronger biological effects compared to cultivated ones. However both wild and cultivated blackberry extracts showed high biological potential that could be attributed to high total polyphenol and flavonoid contents, e.g. wild blackberry extracts inhibited free radicals and the growth of breast adenocarcinoma and cervix epitheloid carcinoma cell lines (Miodrag *et al.*, 2019). Cuevas *et al.*, (2010) characterised anthocyanins and proanthocyanidins in six wild and one cultivated blackberry genotype/s grown in Mexico. The major anthocyanin for all genotypes was cyanidin 3-O-glucoside. Average anthocyanin concentration in Sephadex LH-20 fractions was 49mg/g in the cultivated cultivar (Tupy) compared to a range of 361–494mg/g (cyanidin 3-O-glucoside equivalent) in the wild genotypes. Tests have shown that wild Irish blackberries have a dry matter content of 18% compared to 12% for cultivated which suggests that the former also have higher bioactive properties, and higher vitamin and anthocyanin contents than the latter (Clarke, 2019).

## Conclusions

Blackcurrants and blackberries are highly nutritious via their health promoting bioactives and should be consumed regularly. Fresh blackcurrants are seasonal but high quality frozen berries are available all year. Wild blackberries are available in August-October and consumers are urged to renew the Irish tradition of blackberry picking from the hedgerows. Cultivated blackberries are available from retail outlets on a year round basis and they too are an excellent source of powerful bioactives. While blackcurrant and blackberry jams have high sugar content they are still an excellent source of beneficial bioactives via their intense pigmentation (Diaconeasa *et al.*, 2019).

## References

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