Berry Seeds: A Source of Speciality Oils with High Nutritional Value

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The food industry is continuously searching for novel vegetable oils with a high nutritional value rich in essential fatty acids and functional minor components. Moreover, the food industry is trying to reduce waste streams and/or to produce valuable components from residues. In addition , consumers are looking for alternative lipid resources to be used as food ingredients or cosmetics.

These tendencies are exemplified by berry seed oils isolated during the production of fruit juices. The seed oils are generated from the residual pommace by drying, separation of the skins followed by cold pressing or supercritical extraction. The quality, the fatty acid composition and the concentration of minor components : tocopherols, sterols polyphenols and squalene ; have been determined for raspberry, cranberry, blackberry, blueberry, strawberry and kiwi seed oils. The majority of the oils have a low FFA content but a high peroxide and a p-anisidine value due to the high amount of PUFAs (65-85%) . All the oils have a high concentration of phytosterols (4000-7000 ppm) and variable concentration of tocopherols from 100 ppm (kiwi) to 2200 ppm (raspberry).

It is observed that there is a good relationship between the oxidative stability and the tocopherol content.

The polyphenol content is ranging from 200ppm (blueberry), over 5000 ppm (cranberry) tot 160000 ppm (strawberry). The squalene concentration for kiwi is the highest (8500 ppm).

A comparison between pressed supercritical oils reveals a similar FA composition and a slightly higher content for supercritical extracted oils in tocopherols and sterols.

Berry seed oils are novel high value oils from waste streams rich in PUFAs , tocopherols, sterols and polyphenols and are excellent sources for salad oils and cosmetics.