



# polyphenol

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Cruising Review

Polyphenol: Publications and Research from SwissMixIt



This webpage QR code

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PDF Version of the webpage (first pages)

<https://cruisingreview.com/smx/polyphenol.html>

## Polyphenol Botanical Information

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Description and Research Abstract: Polyphenols are found in plant-based foods and beverages, notably apples, berries, citrus fruit, plums, broccoli, cocoa, tea and coffee and many others. There is substantial epidemiological evidence that a diet high in polyphenol-rich fruit, vegetables, cocoa and beverages protects against developing cardiovascular disease and type 2 diabetes.

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Green tea and green tea polyphenols have been shown to possess cancer preventive activities in pre-clinical model systems.

Polyphenols (aka polyhydroxyphenols) represent a superfamily of diverse naturally occurring phytochemicals. An increasing number of studies on vertebrates and invertebrates have shown that these compounds modulate many signaling pathways, and subsequently exert numerous biological activities (e.g., significant antioxidant, chemopreventive, immune-modulatory, cell repair and photo-protective effects) as well as potential health benefits (e.g., prevention of aging, reduction in cancer incidences and other inflammatory-state diseases).

Polyphenols, organic compounds found abundantly in plants, have become an emerging field of interest in nutrition in recent decades. Polyphenols have antioxidant and anti-inflammatory properties that could have preventive and/or therapeutic effects for cardiovascular disease, neurodegenerative disorders, cancer, and obesity.

The Mediterranean diet is associated with health benefits due to bioactive compounds such as polyphenols. The biological activities of three polyphenols (quercetin (QCT), resveratrol (RSV), apigenin (API)).

The water-based extraction of bioactive components from flavonoid-rich medicinal plants is a key step that should be better investigated. This is especially true when dealing with easy-to-use home-made conditions of extractions, which are known to be a bottleneck in the course for a better control and optimization of the daily uptake of active components from medicinal plants. The optimized easy-to-use-at-home extraction protocol developed for HAW was found very efficient to easily extract bioactive components from BC and CA plants. Regarding their enzymatic and antioxidant activities, a remarkable hyaluronidase inhibition, superior to 90 percent, was reported for HAW extracts similar to the inhibition observed with the referenced hyaluronidase inhibitor.

Sprouting has received increasing attention because of the enhanced nutritional values of the derived products. Baking affects the nutrient availability of the end products. It may be concluded that grain type, germination conditions, and the baking programs play a fundamental role for the production of high-nutritional-value bakery products. Results indicate that the breadlike products showed comparable total polyphenol content and the thermal processes affected the free and bound fractions. Low temperature and high exposure time appear to promote the availability of the free polyphenols and sugars, while high temperature and low exposure time appear to preserve bound polyphenols and starch. Sugar profiles were influenced by baking programs with a higher simple sugar content in the samples processed at low temperature. Phenolic acids showed a strong decrease following processing, and free and bound phenolic acids were positively influenced by high baking temperatures, while an opposite trend was detected at low temperatures.

Alzheimer's disease (AD) is a progressive neurodegenerative disorder leading to the most common form of dementia in elderly people. Modifiable dietary and lifestyle factors could either accelerate or ameliorate the aging process and the risk of developing AD and other age-related morbidities. Dietary polyphenols, in particular wine polyphenols, are a major diver of oral and gut microbiota composition and function. Consequently, wine polyphenols health effects, mediated as a function of the individual's oral and gut microbiome are considered one of the recent greatest challenges in the field of neurodegenerative diseases as a promising strategy to prevent or slow down AD progression.

Medicinal plants are traditionally used as infusions or decoctions for their antioxidant, anti-inflammatory, hypolipidemic and anti-diabetic properties. Purpose—The aim of the study was to define the polyphenol composition and to assess the antioxidant capacity of eight medicinal plants from Reunion Island referred to in the French Pharmacopeia, namely *Aphloia theiformis*, *Ayapana triplinervis*, *Dodonaea viscosa*, *Hubertia ambavilla*, *Hypericum lanceolatum*, *Pelargonium x graveolens*, *Psiloxylon mauritanium* and *Syzygium cumini*. Conclusion—Traditional preparations of medicinal plant aqueous extracts (infusions and decoctions) display antioxidant properties that limit oxidative stress in preadipocytes and red blood cells, supporting their use in the context of metabolic disease prevention and treatment.

Resveratrol is one of the most investigated natural polyphenolic compounds and is contained in more than 70 types of plants and in red wine. The widespread interest in this polyphenol derives from its antioxidant, anti-inflammatory and anti-aging properties. Resveratrol has also been used to enhance aged oocyte quality and as a gametes cryo-protectant with mainly antioxidant and anti-apoptotic effects. In males, resveratrol enhances testes function and spermatogenesis through activation of the AMPK pathway. Furthermore, resveratrol has been supplemented to semen extenders, improving the preservation of sperm quality. In conclusion, resveratrol has potentially beneficial effects for ameliorating ovarian and testes function.



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