

## Herbal teas: their potential as health promoting beverages and bioactive functional foods

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In recent times, there is a growing interest in nutrition and preventive health care in the development and evaluation of natural bioactive and antioxidant active products from plant materials. It is well known that polyphenol compounds are responsible for the potential antioxidant activity and radical scavenging capacity of plant foods. Consumption of a diet rich in polyphenol substances has been linked with a reduced risk for cardiovascular diseases and certain types of cancer. Dietary natural antioxidants strengthen the endogenous antioxidant system by reducing oxidative stress and the risk of toxic diseases. Radical scavenging antioxidants are particularly important in antioxidant defense to protect cells from the injurious effects of free radicals. Free radicals are very reactive chemical species, eventually evoking uncontrolled reactions, resulting in oxidative damage of important biological macromolecules. Polyunsaturated fatty acids which are major constituents of cell membranes are particularly susceptible to free-radical-mediated oxidation because of their conjugated bond structure. Consequently, the process of lipid peroxidation can lead to disturbances in membrane structure and function. Furthermore, and viewed in a global sense, polyphenol compounds as free radical scavengers can act as anti-inflammatory, antibacterial, anti-carcinogenic, anti-allergic and immune-stimulating agents.

### Herbal teas

Common traditionally consumed herbal teas of different origins were investigated for their content of total polyphenols and evaluated for their potential bio-active antioxidant properties, especially in reference to their comprehensive nutritional-physiological and health promoting effects:

**Rooibos tea** - traditionally grown and consumed in South Africa

**Maté tea** – originated from South America

**Peppermint tea** - commonly consumed in Europe and North Africa

**Mallow tea** and **Chamomile tea** - widely consumed in Europe



Rooibos tea



Maté tea



Peppermint tea



Mallow tea



Chamomile tea

### Preparation of herbal teas and herbal tea extracts

Herbal teas were prepared by brewing with hot boiling water according to practical usage. After evaporation of the solvent, the resulting aqueous herbal tea extracts were subjected to analysis of their content of total polyphenols (*Folin-Ciocalteu*) and antioxidant and radical scavenging capacity (*DPPH radical scavenging method*).

### Content of total polyphenols

All the herbal teas showed considerable amounts of polyphenol substances in their aqueous extracts. The highest content was found in Rooibos tea, followed by Maté tea, Peppermint tea, Mallow tea and Chamomile tea.

### Antioxidant and radical scavenging capacity

Correspondingly, the highest radical scavenging capacity (expressed as anti-radical power ARP) was observed in the aqueous extract of Rooibos tea. Remarkable and comparative radical scavenging properties were found in the aqueous extracts of Peppermint tea and Maté tea, whilst the extracts of Mallow tea and Chamomile tea showed only low but still detectable antioxidant activity. There appears to be a general correlation between the antioxidant properties and the total polyphenol content. Slight differences in the range of antioxidant activities might be attributed to variations in the amounts of different polyphenol substances and/or the additional presence of other antioxidant active components.

### Conclusion

Consumption of herbal teas is helpful in maintaining and promoting health, particularly in consideration of their beneficial impact to public health, and especially in respect of cardiovascular disease prevention. Furthermore, herbal tea extracts could be regarded as effective natural antioxidant additives for food products and as functional dietary food supplements due to their significant content of total polyphenols. These are bioactive substances and have significant radical scavenging capacity.

**Total polyphenols and radical scavenging capacity  
of aqueous herbal tea extracts**

