

# Nutraceuticals and Nutrition Supplements

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## Antioxidant therapy with vitamins C and E promotes attenuation of oxidative stress in chronic diseases

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An imbalance between the endogenous and nutritional antioxidants, the over generation of reactive oxygen species (ROS) as well as nitrogen reactive species (RNS), altogether with the detoxification of such reactive intermediates causes oxidative stress (OS). Therefore, cells must respond to this imbalance before these highly reactive species damage important cellular structures and molecules, particularly lipids, proteins, amino acids and DNA. Severe and prolonged OS can trigger apoptosis or necrosis. Numerous pathological conditions have an OS contribution usually associated with a chronic inflammation, including cardiovascular diseases, neurodegenerative diseases, cancer, aging processes, among others. We have studied the effect of vitamin E and C supplemented daily (vitamin E 800 mg and vitamin C 500 mg/day) for 6 months in different chronic diseases such as cardiopathy in chagasic patients, children with Down syndrome, as well as in occupational contamination measured in workers exposed to coal extraction and coal combustion. In all these patients the systemic OS detected before (baseline levels) was significantly attenuated after the antioxidant intervention. Moreover, in chagasic and Down syndrome patients, even after an interruption of 6 months of the antioxidant intervention, we were able to detect a significant and persistent effect (approximately half the values considering time zero or baseline values compared to 6 months after the supplementation), indicating the beneficial maintenance of such antioxidant intervention. These results also contribute to the controversial involvement of dietary supplementation of antioxidants in different human diseases.

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## Chemical composition of essential oil and *in vitro* antibacterial and anticancer activity of the hydroalcolic extract from *Coronilla varia*

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The essential oils of *Coronilla varia* is obtained by hydrodistillation and analyzed by (GC/MS) for determining their chemical composition and identification of their components. The major components were Caryophyllene Oxide (60.19%), Alphacadinol (4.13%) and Homoadantaneca Robexylic Acid (3.31%). The extracts from *Coronilla varia* had interesting activity against *Proteus mirabilis* in the concentration 700 µg/disc and did not show any activity against *Staphylococcus aureus*, *Bacillus subtilis*, *Klebsiella pneumonia* and *Enterobacter cloacae*. The positive control, Ampicillin, Chloramphenicol and Cephalothin had shown zone of inhibition resistant all bacteria. The effect of hydroalcoholic extracts from *Coronilla varia* investigated on Hela cancer cell line. *Coronilla varia* ethanol extract could inhibit the proliferation of Hela cell line in RPMI 1640 medium. LC50 5 (mg/ml) was the optimum concentration of extract from *Coronilla varia* inhibition of cell line growth. The Hela cancer cell line was more sensitive to *Coronilla varia* ethanol extract.

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