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sui prodotti vegetali per la salute:

il ruolo delle piante medicinali nella medicina moderna

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P18. Pigmented potatoes and their preventive effect against LPS-induced inflammation in THP-1 macrophages

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Pigmented potatoes represent a source of several phytonutrients known for their health-promoting potential. While the most common tubers are rich in phenolic acids like chlorogenic acid (CGA) which confers the typical white/yellow color, the pigmented varieties originate from the accumulation of pigments like carotenoids and/or anthocyanins in the flesh and/or in the skin conferring different shades of orange, red or purple. As naturally-occurring antioxidant and antinflammatory compounds, these bioactives could serve as a strategy to counteract chronic inflammation. This prolonged inflammatory condition represents a risk factor of various noncommunicable diseases among the leading causes of death, including cancer, obesity, cardiovascular and neurodegenerative disorders. Considering that carotenoid consumption inversely correlates with the incidence of many chronic diseases such as obesity, diabetes and cancer [1], whereas anthocyanins were found to counteract many inflammation-related diseases including neuroinflammation, cardiovascular disorders and obesity [2, 3], we aimed to study the potential antinflammatory effect of three potato varieties differently enriched in these phytonutrients. We compared the effect of extracts derived from CGA-rich, carotenoid-rich and anthocyanin-rich upland potato varieties named Kennebec (yellow skin and white flesh), Desirée (red skin and yellow flesh) and Bleuet (purple skin and flesh) respectively.

After the characterization of the phytonutrients composition of tubers extracts by HPLC-DAD and spectrophotometric analysis, their antinflammatory potential has been tested on THP-1 derived macrophages insulted with LPS. Human THP-1 monocytes were first differentiated in macrophages via PMA-treatment, pre-treated with extracts and then co-treated with extracts and LPS. The dose-dependent effects on gene expression and/or protein levels of pro-inflammatory mediators were evaluated.

Our results showed that at higher doses all the three extracts exerted a nearly comparable antinflammatory activity *in vitro*, whereas, when provided at lower concentrations close to those detected in human plasma after potato consumption, only Desirée- and Bleuet-derived extracts were able to counteract LPS-induced inflammation. Thus, these upland potato varieties may represent an economical and resilient source of bioactive compounds able to prevent chronic inflammation.