

Onion flavonoids: functional compounds for health benefit

M. Marotti, R. Piccaglia, G. Venturi

*Dipartimento di Scienze e Tecnologie Agroambientali, Università di Bologna,
Viale Fanin,44 40127 Bologna, Italy*

Onion (*Allium cepa* L.), of Liliaceae family, mainly used as condiment, since antiquity has been known for therapeutic properties. Recent researches confirmed these medicinal properties and the consumption of onion seems to prevent the rise of serum cholesterol after a fatty meal (Bordia et al., 1975) and to control the growth of *Helicobacter pylori* which is one of the risk factor for stomach carcinoma (Dorant et al., 1996). These pharmacological effects of onion can be ascribed both to organosulfur compounds which are responsible for the typical odor and flavor and to flavonoids, in particular quercetin which was well known for its anticarcinogenic properties (Kato et al., 1983; Deschner et al., 1991). In last years, onion has been receiving more attention by consumers who have been showing an increasing interest towards the nutraceuticals (functional compounds) which provide health benefits including prevention of diseases. Foods with a high content of flavonoids, in addition to their nutritive value, can have a good protective effect on human health. Considering that onion is widely used as vegetable in many countries and easily cultivated in different environments, in our research twelve commercial cultivars of different colored onions (white, golden and red) were evaluated for the fresh bulb yields and for the flavonoid contents. The fresh bulb yields ranged from 3.1 to 6.7 kg m⁻² as found in golden cultivars "Santana" and "Castillo" respectively. The flavonoids, extracted with methanol/water/acetic acid (50:42:8, v:v:v) from fresh bulbs and characterized by HPLC with a DAD detector, were mainly made up of quercetin and isorhamnetin in the form of aglycones and glycosides. The highest amount of free quercetin was detected in the fresh bulbs of "Tropea rossa tonda" (557.8 mg kg⁻¹) whereas that of total flavonoids was found in "Dorata Density" (979.1 mg kg⁻¹). The golden cultivar "Castillo" resulted in the highest bulb and flavonoid yields (6.7 kg m⁻² and 5.2 g m⁻² respectively)

References

- Bordia, A., Bansal, H.C., Arora, S.K. and Singh, S.V., 1975. Atherosclerosis, 21, 15-19.
Dorant, E., Van Den Brandt, P.A., Goldbohm, A. and Sturmans, F., 1996. Gastroenterology, 110, 12- 20.
Deschner, E.E., Ruperto, J., Wong, G. and Newmark, H.L., 1991. Carcinogenesis, 7, 1193-1196.
Kato, R., Nakadate, T., Yamamoto, S. and Sugimura, T., 1983. Carcinogenesis, 4, 1301- 1305.