

# EXTRACTS PRODUCED FROM BEETROOT, BEETLEAVES AND ROCKET WITH BENEFICIAL EFFECTS IN OBESITY

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In recent years, inorganic nitrate ( $\text{NO}_3^-$ ) has attracted substantial attention as a potential health promoting and exercise performance-enhancing dietary compound. Dietary nitrate is present in large quantities in green leafy vegetables and certain root vegetables such as beetroot [1]. Numerous beneficial health effects of inorganic  $\text{NO}_3^-$  consumption on blood pressure, endothelial function, cerebrovascular blood flow, cognitive function, and exercise performance have been reported.  $\text{H}_2\text{S}$  released from sulfur-containing compounds, like glucoerucin and glucoraphanin, has various regulatory roles in the cardiovascular, nervous, and immune systems. Some of the vascular actions of  $\text{H}_2\text{S}$  resemble those of nitric oxide (NO) [2]. Given their beneficial effects, various dietary supplements based on food plants rich in nitrogen and sulfur containing compounds have been developed. Herein, we studied extracts from beet (*Beta vulgaris*) roots, leaves and juice and rocket (*Eruca sativa*), and evaluated their biological activity related to lipid accumulation in adipocytes. Various, drying and extractions protocols were developed based on maceration with water, ultrasound assisted extraction, treatment with adsorption resins and supercritical fluid extraction, targeting to the production of environmentally friendly extracts, with high yields and especially high content in nitrate. The extracts were then evaluated for their ability to reduce lipid storage in cultured adipocytes. Beetroot juice and leaves extracts, as well as preparations from rocket attenuated fatty acid storage. We conclude that beet and rocket extracts and their combinations can be used for the preparation of dietary supplements with potentially beneficial effects in individuals with obesity and/or metabolic syndrome.

## References

[1] Jones S.P. and Bolli R. 2006. J. Mol. Cell Cardiol., 40, 16-23.

[2] Martelli A. et al., 2020. Br J Pharmacol., 177, 824-835.

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