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PLANT POLYPHENOLS FOR WEIGHT MANAGEMENT: POTENTIAL ROLE OF AMPK

Maria Herranz-Lopez[1], Marilo Olivares-Vicente[1], Marina Boix-Castejon[2], Enrique Roche[2,3], Enrique Barrajon-Catalan[1] and Vicente Micol[1,3]

[1]Miguel Hernandez University of Elche, Spain

[2]ISABIAL-FISABIO Foundation, Spain

[3]CIBERobn, Spain

Introduction: Obesity is one of the most pervasive in chronic diseases where therapeutic approaches have failed. Emerging scientific evidence indicates that dietary therapies may be an alternative in the treatment of obesity and other metabolic disorders. AMP-activated protein kinase (AMPK), a master energy regulator, has been proposed as a molecular target in the capacity of plant-derived polyphenols to ameliorate obesity-related diseases. Thus, dietary therapies with bioactive compounds acting on adipose tissue and targeting AMPK, such as polyphenols, may have potential benefits. Previous evidences have exhibited that plant polyphenolic extracts containing anthocyanins, flavonols and phenylpropanoids were able to reduce triglyceride accumulation, oxidative stress and inflammation in the adipose cell model, and prevented fatty liver disease and improved lipid management in hyperlipidemic animal model.

Materials & Methods: We aimed to develop a combination of the above-mentioned polyphenols that reduced triglyceride accumulation and showed AMPK-activating capacity in a hypertrophied insulin-resistant 3T3-L1 adipocyte model. The efficacy of this combination in the management of weight control was assessed in overweight volunteers.

Results: The volunteers consuming 500 mg/day of the dietary supplement (*Lippia citriodora extract + Hibiscus sabdariffa extract*) for two months decreased weight, improved anthropometric parameters, decreased systolic blood pressure and heart rate, as well as normalized their blood lipid profile.

Conclusion: Therefore, the consumption of 500 mg/day of LC-HS, in combination with an isocaloric diet, may be considered as a dietary supplement for weight management and the prevention of metabolic syndrome. Further research is required to corroborate these facts, but the increase in basal metabolic rate and modulation of fat metabolism, probably mediated by AMPK activation, are proposed as the major causes for such effects.

Biography

María Herranz-Lopez has graduated in Human Nutrition and Dietetics and Food Science in the Miguel Hernández University (UMH) of Elche (Spain). She is a PhD at the Institute of Molecular and Cell Biology (IMCB) and is currently collaborating in the research group of "Natural Bioactive Compounds" of this institute. The research group studies the biological activity and the mechanism of polyphenols in relation to various human pathologies such as obesity, cancer and some infectious diseases.

mherranz@umh.es