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AMPK MODULATORY ACTIVITY OF POLYPHENOLS FROM LIPPIA CITRIODORA: A DIETARY STRATEGY AGAINST OBESITY

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Introduction: Natural dietary products as polyphenols derived from plants have been considered by their potential for the prevention and treatment of several diseases for years. Nevertheless, many of these compounds exert beneficial effects through mechanisms that remain unclear. Recent evidences are postulating AMP-activated protein kinase (AMPK) as an important molecular target for the management of diseases related to obesity. In this study, we aimed to fractionate a commercial extract of *Lippia citriodora* and investigate the capacity of its polyphenolic compounds to modulate AMPK on a hypertrophied adipocyte model.

Materials & Methods: HPLC semi-preparative purification method and reverse phase high performance liquid chromatography coupled to time-of-flight mass detection with electrospray ionization (RP-HPLC-ESI-TOF/MS) were used to obtain the compounds from *Lippia citriodora* extract. AMPK activity was measured by immunofluorescence assay on hypertrophied 3T3-L1 adipocytes, which were previously obtained by incubating cells with high levels of glucose for 17 days. A total of 29 compounds have been tentatively identified in *L. citriodora*, being phenylpropanoids the major class of compounds found. Phenylpropanoids such as verbascoside, iridoids such as gardsoside and flavonoids such as luteolin-7-diglucuronide were the best candidates to account for activating AMPK on adipocytes.

Results & Conclusion: To conclude, specific phenylpropanoids, iridoids and flavones from *L. citriodora* may be responsible for activating AMPK. Further research may be required to obtain combinations of the bioactive compounds that could be used as a nutraceutical for the management of obesity-associated diseases.

Biography

Olivares-Vicente Mariló is a graduate in Biotechnology at the Miguel Hernández University of Elche (Spain) and is currently a PhD student at the Institute of Molecular and Cell Biology (IBMC) of this university, with a PhD contract from VALi+d Programme of Comunidad Valenciana. She has been working since 2013 on the effect of natural polyphenols against obesity in the research group of "Natural Bioactive Compounds" headed by Dr. Vicente Micol.

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