Long-term antihypertensive effects and underlying mechanisms of a mixture of protein hydrolysates from a plant-origin coproduct in rats with diet-induced metabolic syndrome

MASTER'S FINAL PROJECT

Master of Nutrition and Metabolism

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The present work is based on the results obtained from the **external internship**, carried out at the Nutrigenomics research group (Biochemistry and Biotechnology Department, Universitat Rovira i Virgili) and supervised by Dr. Francisca Isabel Bravo.

This work is **confidential**. For this reason, a confidentiality agreement has been signed. The public abstract for the institutional repository is the following one:

Hypertension is a widely recognized risk factor for cardiovascular diseases , and its global prevalence is on the rise. Given the diverse side effects associated with current pharmacological treatments, new and improved alternatives are necessary. Consequently, agri-food coproducts could be a great source of bioactive compounds, such as bioactive peptides, which can exhibit a wide range of functionalities, including antihypertensive effects. Therefore, this research evaluated the antihypertensive properties of a hydrolysate mix (Hmix) from a vegetal coproduct in rats with diet-induced hypertension. Over 8 weeks, Wistar rats fed a cafeteria diet showed increased body weight and blood pressure, however, supplementation with Hmix for the last 4 weeks reduced systolic blood pressure and exhibited a tendency to restore the dipper pattern. Moreover, Hmix improved showed an improvement on the oxidative stress markers (MDA) and the expression of endothelial function-related genes (*eNos* and *Klf-2*), compared with the control group. These findings suggest Hmix's potential as a functional ingredient for hypertension mitigation, though further human studies are necessary.