






Abstract

Chalcones as Potential Inhibitors of Pancreatic Lipase [†]

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- [†] Presented at the 8th International Electronic Conference on Medicinal Chemistry, 1–30 November 2022; Available online: <https://ecmc2022.sciforum.net/>.

Abstract: Obesity is a global disease that has been escalating to epidemic proportions over the past years. A recent report from World Obesity Federation predicts that, in 2030, 1 billion people will be obese. Thus, it is mandatory to develop new therapeutic options that can manage and control obesity. One of the most promising research paths is the inhibition of pancreatic lipase (PL), responsible for the hydrolysis of 50 to 70% of total dietary triglycerides. Chalcones are the precursors of flavonoids, consisting of two benzene rings connected by a three-carbon α , β -unsaturated carbonyl structure. The goal of the present work was to evaluate the activity of seven chalcones with hydroxy (OH) and chloride (Cl) substituents, as potential inhibitors of PL. For this purpose, spectrophotometric and fluorometric microanalysis systems were used, based on the enzymatic metabolism of *p*-nitrophenyl butyrate and 4-methylumbelliferyl oleate, respectively. The obtained results showed that chalcones inhibit PL activity, and that the fluorometric method can reach higher inhibition rates with fewer compounds than the spectrophotometric method. These findings bring new insights into the structure design for the modulation of PL, but further studies are still needed to further explore these compounds as potential anti-obesity molecules.

Keywords: obesity; pancreatic lipase; chalcones; inhibition; spectrophotometry; fluorometry



Citation: Rocha, S.; Tomé, Á.; Rufino, A.T.; Freitas, M.; Carvalho, F.; Silva, A.; Fernandes, E. Chalcones as Potential Inhibitors of Pancreatic Lipase. *Med. Sci. Forum* **2022**, *14*, 116. <https://doi.org/10.3390/ECMC2022-13413>

Academic Editor: Alfredo Berzal-Herranz

Published: 1 November 2022

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Supplementary Materials: The following are available online at <https://www.mdpi.com/article/10.3390/ECMC2022-13413/s1>.

Author Contributions: Conceptualization, S.R., A.T.R. and E.F.; methodology, S.R.; validation, S.R., A.T.R. and E.F.; formal analysis, S.R., Á.T., A.T.R. and E.F.; investigation, S.R. and Á.T.; writing—original draft preparation, S.R. and Á.T.; writing—review and editing, A.T.R., M.F., F.C., A.S. and E.F.; supervision, F.C., A.S. and E.F.; project administration, E.F.; funding acquisition, E.F. All authors have read and agreed to the published version of the manuscript.

Funding: This work received financial support from PT national funds (FCT/MCTES, Fundação para a Ciência e Tecnologia and Ministério da Ciência, Tecnologia e Ensino Superior) through the projects UIDB/50006/2020 and UIDP/50006/2020 and through project EXPL/MED-QUI/0815/2021, entitled “Screening and pharmacological characterization of flavonoids as lead compounds for obesity treatment”. S.R. thanks FCT and ESF (European Social Fund) through NORTE 2020 (Programa Operacional Regional do Norte) for her PhD grant ref. 2021.07176.BD. A.T.R. thanks to FCT for the

funding through the project PTDC/MED-QUI/29243/2017. M.F. thanks FCT for funding through the Scientific Employment Stimulus—Individual Call (2020.04126.CEECIND/CP1596/CT0006) and also LAQV-REQUIMTE for her contract under the reference LA/P/0008/2020.

Institutional Review Board Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.