

Synthesis and biological evaluation of carvacrol-based derivatives as dual inhibitors of *H. pylori* strains and AGS cell proliferation

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Abstract

This study reports on the synthesis, structural assessment, microbiological screening against several strains of *H. pylori* and antiproliferative activity against AGS cells of a large series of carvacrol-based compounds. Structural analysis consisted of elemental analysis, $^1\text{H}/^{13}\text{C}/^{19}\text{F}$ NMR spectra and crystallographic studies. Starting from these premises and keeping in mind that the development of drugs from plant secondary metabolites is a topic of the most recent ongoing research and engages large-scale pharmacological screenings of extracts and active compounds, we aimed at designing a large library of carvacrol-based derivatives possessing multiple tunable functional groups for their chemical modulation to desired properties and assuring the broadest chemical diversity. Indeed, natural product derivatives could shed light on new therapeutic agents against human diseases due to the modulation of the physical-chemical, toxicological and drug-like characteristics of their natural parent compound. This is very important when also addressing pathologies such as gastric cancer where a pluralism of causative factors must be faced by a feasible research strategy which can evolve a multi-targeted perspective (one molecule acting on separate targets of the disease). Moreover, this approach can overcome issue related to combination therapy and the possibility of drug-drug interactions. These newly synthesized compounds can be regarded as new lead compounds able to reduce *H. pylori* growth and to counteract the proliferation of AGS cells.

Speaker Publications:

1. "Biofilm and quorum sensing inhibitors: the road so far"; Expert Opinion on Therapeutic Patents, 2020, 10.1080/13543776.2020.1830059
2. "2-Substituted Benzothiazoles as Antiproliferative Agents: Novel Insights on Structure-Activity Relationships"; European Journal of Medicinal Chemistry, 2020, 10.1016/j.ejmech.2020.112762
3. "Effects of Processing on Polyphenolic and Volatile Composition and Fruit Quality of Clery Strawberries"; Antioxidants, 2019, 10.3390/antiox9070632

[12th International Conference on Medicinal Chemistry and Drug Discovery](#); October 14-15, 2020, webinar.

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Biography:

Dr. Simone Carradori completed his PhD in "Pharmaceutical Sciences" at Sapienza University of Rome (Italy). Dr. Simone Carradori has collaborated and still collaborates with several departments abroad. Now he is assistant professor at the Department of Pharmacy of "G. d'Annunzio" University of Chieti-Pescara (Italy). The scientific activity is mainly focused on the characterization and synthesis of heterocyclic derivatives with potential biological activity, and is documented from about 181 papers in international peer-reviewed journals, one patent and participations in numerous conferences. He is in the Editorial Board of several peer-reviewed journals.