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PP27. Effects of a combined thymol and carvacrol application on rat kidney damage parameters after L-arginine application

Dušan T. Sokolović[1]*, Nikola M. Stojanović[1], Katarina Mitić[2], Pavle Randjelović[1], Dejan Popović[1], Tamara Karutanović[1], Nikola Miljković[1], Jelena Lalić[1], Milica Stevanović[2], Niko Radulović [2]

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Thymol and carvacrol are two frequently abundant volatile monoterpene phenols found as constituents of different, widely used medicinal plants mainly belonging to the Lamiaceae family. The two compounds were previously proven to possess a large number of pharmacological/toxicological activities, including the nephroprotective activity. The present study aims to evaluate the nephroprotective potential of the two mentioned monoterpenes in L-arginine-induced rat kidney damage model. The potentials of thymol and carvacrol to alleviate kidney impairment were investigated using a different serum (urea, creatinine, sodium, potassium) and homogenate (neutrophil gelatinase-associated lipocalin-NGAL) parameters that reflect kidney tissue damage. Significant rat kidney damage, increased serum urea, creatinine, sodium and potassium levels, as well as NGAL tissue activity, followed the application of L-arginine (3.5 g/kg). Thymol (10 mg/kg), carvacrol (10 mg/kg) or their combination (1:1, *w/w*, 10 mg/kg) application prior to L-arginine reduced the kidney tissue damage based on the determined values of the previously mentioned parameters. The activity of the combination of the two monoterpenes was found to be more pronounced than the activity of the individual ones at the same total dose. These differences were clearly visible in the urea and potassium serum levels and in the NGAL tissue activity obtained from the corresponding experimental groups. Such greater nephroprotective potential of the combination of the two compounds could be attributed to a possible synergistic effect of the two volatile phenols, since they were proven alone to both possess antioxidant, anti-inflammatory, immunomodulatory, anti-apoptotic, etc. activities.

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[1]Faculty of Medicine, University of Niš, Serbia; [2]Department of Chemistry, Faculty of Sciences and Mathematics, University of Niš, Serbia.
**Corresponding author*: dusantsokolovic@gmail.com