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PP42. Metabolism of essential-oil constituents: Determination of methyl and isopropyl *N*-methylanthranilates and their metabolites in rat organs

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Two volatile alkaloids, methyl *N*-methylanthranilate (MMA) and isopropyl *N*-methylanthranilate (IMA), identified in the essential oil of *Choisya ternata* Kunth (Rutaceae) [1], have been proven to possess diverse pharmacological activities, including antinociceptive, anti-inflammatory, gastro-, hepato- and nephroprotective activities, anxiolytic and antidepressant properties, as well as an effect on diazepam-induced sleep [2]. Recently, we investigated their urinary metabolite profiles [2]. However, their distribution in rat organs remained unknown. Herein we report on the identification and quantification of MMA, IMA and their metabolites in the organs (liver, kidney, heart, lungs, thigh muscle, and spleen) and serum of rats treated with these two substances (2 g/kg, *i.p.*). Diethyl-ether extracts of the serum and tissue homogenates were analyzed by GC and GC-MS. The largest amounts of both *N*-methylanthranilic acid esters' metabolites were found in the liver, while the lowest ones were found in muscles and spleen tissue. In the case of MMA, anthranilic acid and *N*-methylanthranilic acid were the major liver metabolites, while unmetabolized MMA was present in the liver in minute quantities. On the other hand, unmetabolized IMA was the predominant anthranilate derivative found in the liver, followed by *N*-methylanthranilic acid. Hydroxylated derivatives of MMA and IMA, were present in organ homogenates only in traces, probably due to their (easier) excretion via urine.

References:
[1] Radulović, N.S. et al., 2011. J. Ethnopharmacol. 135, 610–619.
[2] Radulović, N.S. et al., 2017. Food Chem. Toxicol. 109, 341–355.

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