

## PP75. Effects of acorenone-type *Acorus calamus* essential oil on rat gastric fundus contractions and intestinal transit

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In Serbia and the surrounding countries, *Acorus calamus* L. (Acoraceae) rhizome decoction is frequently used for the treatment of different gastrointestinal disorders, especially gastric ulcers [1]. The rhizomes are rich in the essential oil, to which the rhizomes' bulk activity is assumed to be attributed to. Nowadays, a large number of patients is affected by gastrointestinal disorders and the discovery of new treatments, especially those with an ethnomedicinal history, involving natural volatiles, is very welcome. In the work, we aimed to evaluate the effects of *A. calamus* essential oil on isolated rat fundus contractile abilities and intestinal transit following charcoal application. Commercial *A. calamus* rhizomes produced upon hydrodistillation a high yield of the essential oil (1.08%, w/w). The composition of the oil was analyzed by GC and GC/MS and about one hundred constituents, accounting for 89.3% of the detected GC peak areas, were successfully identified. Acorenone (16.1%),  $\beta$ -asarone (5.8%), camphor (5.6%), and camphene (5.5%) were the most abundant components with recognized biological activities, followed by isoshyobunone (4.2%) and shyobunone (3.0%). The gastric fundus muscle was isolated from healthy female Wistar rats and mounted in a vertical bath, containing Krebs solution, for isolated organs to which increasing concentrations of the essential oil were added (0.01-100  $\mu\text{g/mL}$ ). For the intestinal transit experiment, rats were divided into 5 experimental groups (6 rats/group) and were deprived of food 24 h before the experiment. The essential oil (50, 100 and 200 mg/kg) or atropine (2 mg/kg) were orally applied to animals 1 h before a charcoal suspension was given by gavage, while the animals from the control group remained untreated. Thirty minutes later, the animals were sacrificed and the lengths of the small intestine and the path traveled by charcoal were measured. The obtained results revealed that the essential oil, at a concentration of 10 and 100  $\mu\text{g/mL}$ , significantly inhibited the spontaneous fundus contractions. Atropine and all tested doses of the essential oil produced a significant inhibition of the intestinal transit by reducing the length of the path traveled by charcoal. The present results indicate that the essential oil of *A. calamus* significantly affects rat gastrointestinal motor activity by reducing the gastric fundus spontaneous contractions and charcoal intestinal transit.

### References:

[1] Tucakov, J., 2014. *Lečenje biljem* (in Serbian), Vulkan.

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