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BOOK of ABSTRACTS



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**ANTI-INFLAMMATORY POTENTIAL OF MEADOWSWEET
(*FILIPENDULA ULMARIA*): *IN VITRO* AND *IN VIVO* ANALYSIS**

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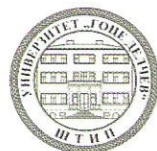
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Filipendula ulmaria (L.) Maxim (Rosaceae, meadowsweet) has been traditionally used as a medicinal herb in most European countries for the treatment of inflammatory diseases due to its anti-inflammatory, antipyretic, analgesic, astringent and anti-rheumatic properties. The aim of this study was to evaluate *in vitro* and *in vivo* anti-inflammatory activity of the extracts of *F. ulmaria* aerial parts (FUA) and roots (FUR) to provide a scientific basis for their widespread use in the treatment of inflammation. The characteristic phenolic compounds in *F. ulmaria* extracts were monitored via high performance thin layer chromatography (HPTLC). The *in vitro* anti-inflammatory activity of *F. ulmaria* extracts was evaluated using cyclooxygenase-1 (COX-1) and cyclooxygenase-2 (COX-2) assays and assay for determining COX-2 gene expression. The *in vivo* anti-inflammatory effect of *F. ulmaria* extracts was determined with hot plate test and carrageenan-induced paw edema in rats. FUA extract showed the presence of rutin, spiraeoside, and isoquercitrin. Both *F. ulmaria* extracts at concentration 50 µg/mL were able to inhibit COX-1 and -2 activities, whereby FUA (62.84 and 46.43%, respectively) was two times more effective than FUR (32.11 and 20.20%, respectively). Extracts showed low level of COX-2 gene expression at concentration of 25 µg/mL (10.19% for FUA and 8.54% for FUR). In the hot plate test, both extracts in two doses (100 and 200 mg/kg b.w.), exhibited an increase in latency time. In the carrageenan-induced acute inflammation, FUA at doses of 100 and 200 mg/kg b.w., and FUR at 200 mg/kg, were able to significantly reduce the mean maximal swelling of rat paw until 6 h of treatment. At 24 h after carrageenan injection all extracts significantly decreased paw edema. The observed *in vitro* and, for the first time, *in vivo* anti-inflammatory activity is supported by the presence of proven biologically active compounds in *F. ulmaria* extracts, especially in aerial part extract. The results provided scientific evidences to support the traditional use of this plant in the treatment of different inflammatory conditions or disorders.

Key words: *Filipendula ulmaria*, HPTLC, inflammation, cyclooxygenase, λ -carrageenan

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