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Lecture Session – Phytopharmacology/Extract Pharmacology I

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Baccharis dracunculifolia decreases nociception, depressive-like behaviour and supraspinal activated microglia in rats with experimental monoarthritis

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In arthritic disorders both inflammation and the progressive degeneration of joints persistently activate nociceptors, in periarticular structures, leading to the development of persistent pain and comorbid emotional impairments. Arthritis-induced peripheral sensitization leads to increased release of nociceptive molecules by primary afferents that activate neurones e glial cells in the spinal cord and supraspinal pain modulatory areas such as the amygdala (AMY) and the periaqueductal grey matter (PAG).

Baccharis dracunculifolia DC (Asteraceae) (Bd) is a medicinal shrub from the brazilian flora, popularly known as “Alecrim do Campo”, considered to be an important source of active anti-inflammatory and antinociceptive compounds. Adult 8 weeks old ovariectomized female rats (*Rattus norvegicus*, vr. *Albinus*, Wistar) weighting 210 ± 17 g were divided in four groups (n = 6 per group): (i) SHAM, (ii) ARTH, (iii)

ARTH treated with *B. dracunculifolia* (50 mg/kg), and (iv) ARTH treated with *B. dracunculifolia* (100 mg/kg).

Mechanical hyperalgesia in ARTH animals was assessed using the pressure application measurement apparatus, anhedonia using the sucrose preference test and learned helplessness using the forced swimming test. Activated microglia was stained with IBA-I and quantified in a subset of brain slides containing the target areas, the amygdala and the periaqueductal gray matter.

A three-week oral treatment with Bd extract reversed ARTH-induced mechanical hyperalgesia and partly reserved depressive-like behaviour. Concomitantly, Bd treatment decreased the number of activated microglia in the AMY and PAG of ARTH animals.

This study was supported by grants from INTERACT project – “Integrative Research in Environment, Agro-Chains and Technology”, no. NORTE-01 – 0145-FEDER-000017 and the Portuguese North Regional Operational Program (ON.2 – O Novo Norte) under the National Strategic Reference Framework (QREN), through the European Regional Development Fund (FEDER), in its line of research entitled ISAC.

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