



## Investigation of the tocolytic effect of essential oil from *Hyptis suaveolens* and *Hyptis martiusii* leaves (Lamiaceae): a comparative study

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*Hyptis* genus (Lamiaceae) is popularly used as tocolytic agent (1), however there is no scientific data showing that activity. Therefore, the aim of this study was to investigate a possible tocolytic effect of the essential oil from leaves of *H. suaveolens* (HS-EO) and *H. martiusii* (HM-EO) on female rats, and compare their relative efficacy and potency. Adults female rats (*Rattus norvegicus*) were estrogenized (diethylstilbestrol 1.0 mg/kg, s.c.) 24 h before experiments. The uterus was removed, cleaned, suspended in organ baths on appropriated conditions and the isotonic and isometric contractions were monitored. All experimental protocols were previously approved by Ethical Committee in Animal Use of UFPB (nº 048/2015). HS-EO (1-243 µg/mL, n = 5) and HM-EO (1-729 µg/mL, n = 5) antagonized the phasic contractions induced by oxytocin 10<sup>-2</sup> UI/mL (IC<sub>50</sub> = 38 ± 2.1 and 71.6 ± 4 µg/mL, respectively) and carbachol (CCh) 10<sup>-5</sup> M (IC<sub>50</sub> = 18.9 ± 0.9 and 44.8 ± 1.8 µg/mL, respectively) in a significant and concentration-dependent manner. Both oils induced maximum efficacy (E<sub>max</sub>) of 100% compared to the tested agonists. As both oils showed higher potency front contractions induced by carbachol, suggesting the involvement of muscarinic receptors in this tocolytic effect. In other experiments, HS-EO and HM-EO (1-729 µg/mL) relaxed rat uterus (n = 5) pre-contracted with KCl 60 mM (EC<sub>50</sub> = 13.9 ± 2.3 and 33.8 ± 4.5 µg/mL, respectively) or oxytocin 10<sup>-2</sup> UI/mL (EC<sub>50</sub> = 19.2 ± 0.6 and 71.2 ± 10 µg/mL, respectively). The essential oils showed 100% of tocolytic efficacy and higher potency when the organ was pre-contracted by CCh compared to KCl. The data showed that HS-EO was equipotent and HM-EO was more potent in relaxing pre-contracted uterus with KCl, suggesting the involvement of voltage-gated calcium channels (Ca<sub>v</sub>) in the spasmolytic effect of oils, since activation this channels is a common step in these contractile agents pathway. Finally, in this study, it was confirmed the folk medicinal indications of *H. suaveolens* and *H. martiusii*, showed tocolytic activity on rat, being HS-EO more potent than HM-EO all protocols tested.

1. Agra, M. F. VIII Congresso Latinoamericano y II Colombiano de Botánica, Bogotá. Anais. 2004, 192-211.

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