



## VASODILATORY EFFECT OF PERILIC ALCOHOL ON HUMAN UMBILICAL CORD VEINS

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*Keywords: alcohol perilic, human umbilical vessels, organ bath.*

### ABSTRACT

**Introduction:** Perillyl alcohol (POH) is a monoterpenoid present in the composition of plant essential oils, being the main constituent of mint and ginger. Some biological activities of POH have been reported, such as vasorelaxant activity in rodent vessels and human umbilical artery. However, nothing is known about the effect of POH on the human umbilical vein (HUV).

**Objective:** To evaluate the effect of POH on the smooth muscle of the HUV. **Methodology:** POH was purchased from Sigma-Aldrich. The study was approved by the Human Research Ethics Committee of the Regional University of Cariri-URCA with Opinion Number: 3.832.831. To carry out this work, the HUV were isolated, cleaned and sectioned into 3-4 mm rings and kept in an organ bath, with a capacity of 10 mL, in Krebs Henseleit solution, under carbogenic mixture, at 37 °C. **Results:** POH (1 - 1000 µM) was able to fully relax the electromechanical contractions induced by KCl (60 mM) and the pharmacomechanical contractions induced by serotonin (10 µM) in the HUV, with statistically significant relaxation from the following concentrations: 30 µM and 100 µM respectively, for which the EC<sub>50</sub> values were: electromechanical 161.1 ± 6.9 µM, and pharmacomechanical 269.8 ± 7.8 µM. In the VUH, POH (1000 µM) also inhibited the contraction elicited by BaCl<sub>2</sub> (0.1-30 mM), similarly to nifedipine (10 µM), demonstrating a possible involvement of voltage-gated calcium channels (VOCC). **Conclusion:** The data found show that POH has a vasodilatory effect on HUV, with greater pharmacological potency in the electromechanical pathway. This effect may be mediated by VOCC. These data demonstrate new possibilities in the treatment of umbilical vascular dysfunctions, such as vascular resistance caused by preeclampsia, using natural products derived from plants such as POH.