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20. POTENTIAL NATRIURETIC EFFECT OF *Jungia polita* IN RATS

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Jungia polita Griseb. (Asteraceae-Multisieae) is popularly known as "zarzaparrilla" or "viña". This shrub species is used in argentine folk medicine as diuretic, anti-sclerotic, hypotensive, and also for skin affections; antihyperlipidemic, bradicardic and depurative. Infusion (10%) of the aerial parts was prepared, separated by filtration and the aqueous extract was concentrated and lyophilized to preserve it. Orally administration of *Jungia polita* up to 2g/kg produced no mortality and visible signs of delayed toxicity 14 days post-treatment. This study was designed to determine the natriuretic activity of *Jungia polita* lyophilized extract (JPLE). The test was performed as described by Lipschitz *et al*. The experiments were approved by the local Committee CICUA (Protocol F-405/22). Wistar rats (150-180 g) were employed. The animals, randomly assigned into groups (n=6-8), were deprived of food for 18 hours prior to starting the experiments and had free access to water. The test groups were administered with different doses of JPLE (250 or 500 mg/kg, orally). Reference group received Furosemide (10 mg/kg, intra-peritoneal). Control group received only the vehicle (50 ml/kg, orally). Immediately after administration, rats were paired and placed in metabolism cages. At the end of the experiments, the animals were euthanized by inhalation of carbon dioxide. Urinary volumetric excretion (UVE), urine chemical parameters, urine Na^+ and urine K^+ were measured in 3-hour diuresis. All values were expressed as the mean ± SEM. Graph Pad Prism was used for the statistical analysis and p values less than 0.05 were considered statistically significant. Student's *t*-test was performed to evaluate the differences between the control and the experimental samples. Lot treated with JPLE showed natriuretic activity between 250 mg/kg doses (urine Na^+ (mEq/L): 17.13±5.52 vs. control: 9.01± 2.65; $p<0.05$) and 500 mg/kg doses (urine Na^+ (mEq/L): 14.91±4.67 vs. control: 9.01±2.65; $p<0.05$). The urinary K^+ showed significant differences for the lot treated with 500 mg/kg JPLE [urine K^+ (mEq/L): 66.79±9.25 vs. control: 50.30±10.23; $p<0.05$]. Non-significant differences were observed with 250 mg/kg JPLE [urine K^+ (mEq/L): 51.09±24.45 vs. control: 50.30± 10.23; $p>0.05$]. The lot treated with JPLE (500 mg/kg) showed diuretic activity between 45 min (UVE: 20.06±8.04 vs. control: 4.84± 1.69; $p<0.01$) and 180 min (UVE: 82.95±8.92 vs. control: 52.74±6.03; $p<0.001$). Urine samples presented normal chemical parameters in all the cases: urinary density and pH were similar to controls. The data reported in this work indicate that the infusion of *J. polita* showed diuretic activity (0.59), compared to furosemide, a loop diuretic potent. Further investigations are necessary prior to their recommendation for use as natriuretic.

21. DIVERGENT CYTOTOXIC AND PRO-INFLAMMATORY PROPERTIES OF TIO_2 NANOPARTICLES AND NANODIAMONDS

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Recent advancements in nanotechnology and nanoscience resulted in innovative and highly engineered nanoparticles (NPs) and nanodiamonds (NDs) with specific properties and a wide range of applications. This makes it necessary to study their interaction with living systems, including cytotoxicity and pro-inflammatory properties. Several toxicological studies have reported the effect of titanium dioxide (TiO_2) NPs and NDs on cell lines, but there is insufficient data on its effect on primary cell cultures. Macrophages are ubiquitous cells in mammals and central cells in the innate immune system. Measurement of nanomaterials cytotoxic properties on primary macrophage culture is the first step in testing further biological effects. Furthermore, the inflammatory priming of peritoneal macrophages can be directly studied by measuring the radical nitric oxide (NO) production as nitrites in the culture medium. Therefore, in this study, we aim to test cytotoxic and pro-inflammatory properties of TiO_2 NPs and NDs. To accomplish our objective, we isolated mouse peritoneal macrophages from peptone-elicited male 7-week-old BALB/c mice. Monolayers of PM were cultured in clear 96-well microtiter plates for 24h in DMEM-high glucose medium containing 10% fetal calf serum and antibiotics (complete medium, CM). After this incubation cell monolayers were rinsed and incubated in CM containing different concentrations of TiO2 NPs and NDs (50-200 µg/ml). After 24h of incubation, nitrite concentration in the medium was measured using the Griess assay. Monolayers were rinsed with pre-warmed sterile saline and exposed to 1mg/ml MTT. After 30 min of incubation at 37°C, formed formazan crystals in living cells were dissolved with DMSO and the absorbance was read at 570nm in a plate reader as a viability measurement. Neither TiO2 NPs nor ND caused significant