Effect of *Vaccinium Ashei reade* extract on liver damage induced by cadmium

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INTRODUCTION: Blueberries (*Vaccinium Ashei reade*) are one of the richest sources of antioxidant compounds. These compounds can reduce oxidative stress by acting as a free radical scavenger. Oxidative stress is regarded as one of the mechanisms by which cadmium acts in many organs, including liver. Since cadmium is an environmental hazard, it is important to investigate possible alternative treatments such as blueberries extract. **OBJECTIVE:** We analyzed total phenolic content of a hydro-alcoholic blueberry extract (BBE) and evaluated its effect on non-proteic thiol (NPSH) and ascorbic acid (AA) contents and also on cadmium accumulation in liver of mice exposed to cadmium. **MATERIALS AND METHODS:** Blueberries (250 mg) were macerated and mixed with 100 ml of hydro-alcoholic solution (4:1, water:ethanol) and filtered. Total phenolic content was measured using Folin-Ciocalteu reagent. Female adult Swiss mice received subcutaneously CdCl₂ (2.5 mg/kg) and 30 min later received orally 2.5 mg/kg BBE five times weekly during 3 weeks. Liver was removed 24h after exposure. Part of the liver was used for cadmium content analysis, and the remaining were homogenized (1:10, w/v) and centrifuged. The supernatant was used to evaluate NPSH and AA. **RESULTS AND DISCUSSION:** BBE presented a total phenolic content of 185 µg Galic Acid eq./mL. Cadmium-treated mice presented a significant increase in NPSH (46.8%) and in AA (22%) compared to control, probably as a reaction to the xenobiotic insult. Cadmium also accumulated in liver of exposed mice (164.57 µg/g). BBE was able to partially restore NPSH and AA, but had no significant effect in cadmium accumulation. **CONCLUSION:** Cadmium accumulates in liver tissue, increasing NPSH and AA levels. BBE therapy was not effective in protecting against cadmium accumulation, however was able to partially restore NPSH and AA levels.

Keywords: Blueberry, cadmium, liver, non-enzymatic antioxidants, oxidative stress