Renal Damage Reduction And Antifungal Action Improvement Of Amphotericin By Hesperidin

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INTRODUCTION: Amphotericin B (AmB) is a "gold standard" drug for the treatment of fungal infections. However, it has high toxicity, which manifests itself most frequently in the kidneys. The self-oxidation of amphotericin B yields different reactive oxidative species, what may be responsible, in part, by its toxicity. Hesperidin (Hesp) could contribute to decrease AmB toxicity. OBJECTIVE: The aim of this study was to evaluate the combination of hesperidin to AmB in antifungal and toxicity model studies. METHODS: Antifungal assay with cultures of Candida albicans ATCC 64546: the Minimum Inhibitory Concentration (MIC) was evaluated; firstly, an inoculum was prepared in 0.85% NaCl, sterile and absorbance measured 530nm. Artemia salina citotoxicity study: lethal concentration to 50% of larvae death (CL50) was calculated; it was used 100 mg of eggs on saline water, pH between 8 and 9. Renal effect: induction of renal damage with amphotericin B (3mg/kg/day) followed by Hesp administration in two groups (50 and 200mg/kg/day) - on the sixth day the animals (Rattus norvegicus var albinus) were anesthetized for blood collection for biochemical analysis of serum urea. RESULTS: MIC: AmB = 0,025μg/mL, Hesp >125μg/mL, AmB (+Hesp 125 μg/mL) = 0,006μg/mL. Artemia salina assay: CL50: AmB = 25,37μg/mL, Hesp = 423,47μg/mL and AmB (+ Hesp 423 μg/mL) = 334,14μg/mL. Serum urea – mg/dL (renal function parameter): Control group = 34±6, AmB group = 44±8, Hesp group (200 mg/kg/dia) = 36 5, AmB (+ Hesp 50 mg/kg/dia) = 37±1 and AmB (+ Hesp 200 mg/kg/dia) = 37±4. CONCLUSION: Based on these results, the natural product association with amphotericin B may improve its antifungal property and reduce its renal toxicity.

Keywords: hesperidin, amphotericin B, oxidative stress.