

GIODAI Pharma Summit August 10-12, 2015 Philadelphia, USA

Searching for flavonoids with tyrosinase inhibitory activity from extracts of Dalea pazensis

Mugas M L¹, Konigheim B², Aguilar J², Marioni J¹, Comini L¹, Contigiani M², Cabrera J¹, Núñez Montoya S¹ ¹IMBIV-CONICET - Farmacognosia, Dpto. Farmacia, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba. Ciudad Universitaria, Córdoba, X5000HUA, Argentina ²Instituto de Virología (InViV), Facultad de Ciencias Médicas, Universidad Nacional de Córdoba. Ciudad Universitaria, Córdoba, X5000HUA, Argentina

Our research group studies the activity of photosensitizing anthraquinones (AQs), purified from a phototoxic plant, against several viruses. To study the antiviral activity of these AQs (into the infected cells, at some stage of viral replication), which can in turn be photostimulated, an appropriate methodology is needed. Therefore, the aim of this work was to assess two techniques, the Neutral Red uptake assay (NR) and the test of reduction of plaque forming units (PFU), establishing besides the conditions necessary to quantify the in vitro antiviral effect photosensitized.

Different concentrations of an extract enriched in AQs (\leq CC50) were assayed in order to ensure a photostimulated effect against Herpes Simplex Virus Type 1. Both aforementioned techniques were performed in Vero cells, under two simultaneous conditions: darkness and irradiation (actinic lamp 380-480 nm, Philips TL/03). The following variables were evaluated: culture medium during irradiation, irradiation time on virus-cells-extract, culture medium post-irradiation and incubation time.

The optimal conditions for both methodologies were: PBS 1% DMSO (culture medium during irradiation), 15 minutes (irradiation time on virus-cells-extract), MEM supplemented with 2% FBS (culture medium post-irradiation), 36 h incubation. The NR assay was chosen because it allowed determining the inhibition percentage, which could not be estimated by the PFU test, since it only showed the qualitative toxicity of the photostimulated extract. Besides, during the NR assay, the cytopathic effect (microscopic observation of morphological alterations in cells) could be simultaneously assessed. This is very important because it allowed discriminating the agent responsible for the cytotoxic effect.

Biography

Pharmacist María Laura Mugas: Teacher and scholar at the Pharmacy Department in the Chemistry School, National University of Cordoba, Argentina. Specifically, she belongs to the Pharmacognosy group research, in where she is performing her Chemistry PhD. Her work plan is aimed to study the in vitro antiviral activity of natural anthraquinones against several kind of virus. With her recent introduction into research, she has published 6 works in congress with promising results that promote the development of specific studies about antiviral therapy with natural photosensitizers.

mmugas@fcq.unc.edu.ar

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