

Cosmos caudatus extract/fractions reduce smooth muscle cells migration and invasion in vitro: a potential benefit of suppressing atherosclerosis

ABSTRACT

Background: *Cosmos caudatus* Kunth is a medicinal herb used traditionally in Latin America and South East Asia to retard aging, rigidify bones and for several cardiovascular uses. **Objective:** Is to assess *C. caudatus* extract/fractions' antioxidant and vascular smooth muscle cells (VSMC) migration and invasion inhibition capacity in vitro. **Methods:** *Cosmos caudatus* shoots were extracted by cold maceration in 50% ethanol to produce crude (CEE), and then the extract was fractionated to butanol (Bu.F), and aqueous fractions (Aq.f). Phenolics and saponins were quantified in extract and fractions by colorimetric methods and their antioxidant capacity was assayed in four different tests. Cytotoxic effect and safety level concentrations were determined for the fractions by using MTT assay. Migration and invasion inhibitory potential were measured in vitro at three different concentrations equivalent to (IC₁₀, IC₂₅, and IC₅₀). Finally, invasion inhibitory index was calculated to obtain the best fraction(s) that show(s) the highest ratio of cell invasion inhibition to the total cell migration inhibition. **Results:** Butanol fraction yield was the lowest; nevertheless, its phytochemical contents, antioxidant activities as well as its potency were the highest. Unlike other fractions, Bu.F was strongly correlated with all antioxidant assays experimented. In addition, it has the highest inhibitory effect at IC₂₅ against VSMCs migration and invasion that accounts for 53.93% and 59.94% respectively. Unexpectedly, Bu.F and CEE at IC₁₀ displayed the highest invasion inhibitory index (approx. 68%). **Conclusion:** Butanol fraction of *C. caudatus* offers a potentiality for the discovery of new leads for preventing atherosclerosis.

Keyword: Antioxidant; Atherosclerosis; *Cosmos caudatus*; Migration; Invasion