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Pharmaco-characterization, Antioxidant, and Cytotoxic Activity of *Caesalpinia crista* Linn. and its Role in Prevention of Cell Proliferation in MG-63 Osteosarcoma Cell Lines

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***SUMMARY. Caesalpinia crista* Linn. commonly known as Lata Kranja belongs to the family Caesalpiniaceae. It is a prickly shrub, found around the world, particularly in India, Sri Lanka, and the Andaman and Nicobar Islands. In India, it is native to areas in tropical regions. *C. crista* has been frequently used in ethnomedicinal practices, yet organized data somewhere lacks in reverse pharmacognostic approach for this plant which shows that plant needs to be further explored for its therapeutic effect. Methanolic extract of *C. crista* whole plant (CME) was analyzed for the following parameters which include total phenols, total flavonoids, HPTLC, and GC-MS analysis followed by antioxidant assay *viz.* DPPH assay. The MG-63 osteosarcoma cell lines were used to observe the reduction in cell proliferation by MTT assay. The studies also include standardization parameters as per WHO guidelines. CME was subjected to GC-MS analysis which indicated the presence of different active constituents. The phytochemical screening of the methanolic extract showed the presence of rich amounts of phenolic compounds (4.15 %) and flavonoids (3.31%). The plant showed good antioxidant activity which may be due to the ample amount of phenolic constituents. The crude methanolic extract of the plant showed inhibition at all concentrations in a dose-dependent manner. Good scavenging activity was exhibited by the methanolic extract with a low IC_{50} value through the DPPH assay. There was a reduction in cell proliferation at low doses only. The methanolic extract of *C. crista* exhibits good antioxidants as well as reduces cell proliferation which is reflected in the results of the DPPH and MTT assays, respectively. However, both are shown at low doses too.**

RESUMEN. *Caesalpinia crista* Linn. comúnmente conocida como Lata Kranja pertenece a la familia Caesalpiniaceae. Es un arbusto espinoso que se encuentra en todo el mundo, particularmente en India, Sri Lanka y las islas Andaman y Nicobar. En la India, es originaria de las zonas de las regiones tropicales. *C. crista* se ha utilizado con frecuencia en las prácticas etnomedicinales, pero los datos organizados en alguna parte carecen de un enfoque farmacognostico inverso para esta planta, lo que muestra que la planta necesita ser explorada más a fondo por su efecto terapéutico. El extracto metanólico de la planta completa de *C. crista* (CME) se analizó para los siguientes parámetros, que incluyen fenoles totales, flavonoides totales, análisis HPTLC y GC-MS, seguido de un ensayo de antioxidantes, a saber. Ensayo DPPH. Las líneas celulares de osteosarcoma MG-63 se usaron para observar la reducción en la proliferación celular mediante el ensayo MTT. Los estudios también incluyen parámetros de estandarización según las directrices de la OMS. CME se sometió a análisis GC-MS que indicó la presencia de diferentes componentes activos. El tamizaje fitoquímico del extracto metanólico mostró la presencia de cantidades ricas en compuestos fenólicos (4,15 %) y flavonoides (3,31 %). La planta mostró una buena actividad antioxidante que puede deberse a la gran cantidad de constituyentes fenólicos. El extracto metanólico crudo de la planta mostró inhibición a todas las concentraciones de forma dosis-dependiente. El extracto metanólico mostró una buena actividad depuradora con un valor IC50 bajo a través del ensayo DPPH. Hubo una reducción en la proliferación celular solo con dosis bajas. El extracto metanólico de *C. crista* presenta buenos antioxidantes y reduce la proliferación celular, lo que se refleja en los resultados de los ensayos DPPH y MTT, respectivamente. Sin embargo, ambos también se muestran en dosis bajas.

KEY WORDS: *Caesalpinia crista*, ethnomedicinal, MTT, flavonoids, phenols, HPTLC, GC-MS analysis.

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