

Chemistry and Bioactivity of Seeds of *Punica granatum*

A.G.A.W. Alakolanga, Lalith Jayasinghe, N. Savitri Kumar

Institute of Fundamental Studies, Kandy.

E.mail: wimukthikaag@gmail.com

Punica granatum of the family Punicaceae is a popular fruit bearing shrub growing in Mediterranean, North American and Asian regions. All parts of this shrub including fruits, roots, leaves and flowers have been used for various medicinal purposes from ancient times. Chemistry of this plant has been carried out extensively. Several fatty acids, monoacylglycerols, triglycerides, phytosterols, pectins and sugars have been reported from the seeds.

Dried seeds of *P. granatum* were extracted using 80% aq. acetone. Acetone extract was salted out using NaCl and acetone phase was further washed with the aqueous phase of NaCl saturated 80% aq. acetone. Acetone phase was then evaporated at 25°C and an equal amount of distilled water was added. Aqueous solution was then extracted with ethyl acetate.

Ethyl acetate extract and aqueous extract were subjected to bioassays for phytotoxicity, antifungal activity, cytotoxicity, antioxidant activity and hemolytic activity. Both extracts showed significant phytotoxicity at 500 ppm concentration on both roots and shoots elongation of germinating seeds of *Lactuca sativa*. Cytotoxic activity against 2nd instar nauplii stage of *Artemia salina* even at 1000 ppm was not observed. Saturated solution of EtOAc extract in 70% methanol did not show any hemolytic activity with blood agar, however the aqueous extract showed a significant hemolytic activity. Crude EtOAc extract showed an antifungal activity against *Cladosporium cladosporioides* in TLC bioautographic method. Antioxidant activity of the crude EtOAc extract against 0.2% DPPH solution in TLC bioautographic method showed significant antioxidant activity. Chromatographic separation of the ethyl acetate extract furnished eight compounds. NMR and MS spectral data indicated the presence of acyl glycerols and derivatives.