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BIOLOGICAL ACTIVITY STUDIES OF SOME SRI LANKAN MEDICINAL PLANTS

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Biological assays on brine shrimp (Artemia salina) have been used to study different bioactivities such as analgesic and anticancer activities[1,2]. The activity is manifested as a toxicity to the shrimp and the procedure determines $Lc_{(50)}$ values (the concentration needed to kill 50% of the larvae) in a brine medium. In our attempt to device a method suitable for preliminary screening of medicinal plant extracts for biological activity, we subjected lyophilized aqueous plant extracts to this assay system. Of the extracts tested Molluge cerviana Seringe, Plumbago indica Linn, Piper longum Linn, Aegle marmelos Correa, Amaranthus spinosus Linn, showed $Lc_{(50)}$ values < 1000 µg/ml. While Centella asiatica Urb, Cardiospermum halicacabum Trim, Tinospora cordifolia Miers, Andrographis paniculata Nees, Munronia pumila Wight showed $Lc_{(50)}$ values greater than 2500 µg/ml.

The results were compared with the reported ability of these extracts to modulate the classical pathway of human complement activation[3]. Classical pathway of human complement is one of several components of the human immuno system and consists of a protein cascade. The activation of this cascade is initiated by the C_1 protein component. The activity is expressed as CH_{50} values which denotes the µl of human serum needed to bring about the lysis of 50% of the target erythrocytes by the conventional haemolytic complement assay method.

These preliminary results showed that the extract which had high immunomodulating activity on the classical pathway (CH_{50} values)[3] were less toxic to this test system, whereas those which showed low inhibition of the Classical pathway showed high toxicity thus indicating some correlation. This assay may therefore be useful as a preliminary test for screening for classical pathway modulating plant extracts.

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References

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