

**Title: Phytochemical and bioassay screening for fruits of *Sarcococca saligna* (D. Don)  
Muel and aerial parts of *Astragalus anisacanthus***

**Abstract**

**Part A:** Crude methanolic extract (Crd. MeOH Ext.) and different fractions of *S. saligna* fruits were investigated for various pharmacological / biological activities; antimicrobial, brine-shrimp lethality, phytotoxic, haemagglutination, insecticidal, anti-termites, diphenyl picryl hydrazine (DPPH) free radical scavenging assay, acute toxicity, analgesic, locomotor, antidepressant and Gastro Intestinal Tract Motility (GIT). The activities has revealed that the plant possess good antibacterial, anti-termite, analgesic activity and GIT Motility. Moderate phytotoxic activity was shown by the test samples at higher concentration (1000µg/ml). Low antifungal, insecticidal, cytotoxic, locomotor and antidepressant activity was shown by various fractions of this plant. A concentration dependent DPPH free radical scavenging activity was shown by the test samples with moderate EC<sub>50</sub> (58.61 µg/ml). Fruits of the plant lack phytolectins as no haemagglutination activity were observed against human erythrocytes. The *S. saligna* fruits extract significantly inhibited the germination of wheat seeds (20g/72hrs). *S. saligna* fruits showed the presence of alkaloids, sterols, triterpenoids, phenols, flavonoids, tannins and saponins. Elemental analysis showed the presence of Sodium (Na), Magnesium (Mg), Zinc (Zn), Potassium (K), Nickel (Ni), Copper (Cu), Lead (Pb), Manganese (Mn), Cobalt (Co), Cadmium (Cd), Iron (Fe) and Chromium (Cr). The proximat analysis showed carbohydrate, proteins, fibers, fats and moisture content in fairly large amounts. The Scanning Electron Microscopy (SEM) technique was used to determine the morphology of the *S. saligna* fruits powder. The Energy Dispersive X-rays (EDX) technique was utilized to determine elemental composition. Maximum number of oil component was identified through GC-MS analysis.

**Part B** describes pharmacological investigations, isolation and structure elucidation of isolated compounds from *A. anisacanthus*. The aerial parts of *A. anisacanthus* possess significant anti-termite, cytotoxic and percent radical scavenging activity. Good antibacterial, analgesic, GIT motility, locomotor, antidepressant and insecticidal activity was shown by the Crd. MeOH Ext. and various fractions of *A. anisacanthus*. Moderate antifungal and phytotoxic activity was shown by the test sample. The plant showed moderate haemagglutination activity against O<sup>+ive</sup> and A<sup>+ive</sup>. Toxicological studies showed that plant is safe for human use (1000 mg/kg). *A. anisacanthus* aerial parts showed the presence of alkaloids, sterols, triterpenoids, phenols, flavonoids, tannins and saponins. The nutritional analysis of *A. anisacanthus* showing moisture contents 9.5%, ash 7.4%, fats 7%, fibers 23.21%, protein 8% and carbohydrates 48.73% and gross energy 51.27 cal/100g. Elemental analysis showed the presence of Zn, K, Ni, Cu and Pb, Mn, Co, Cd, Fe and Cr. The SEM technique was used to determine the morphology

of *A. anisacanthus* aerial parts. The EDX technique was utilized to determine the amount as well as to identify elementary composition of *A. anisacanthus* aerial parts. The EDX pattern of spectrum recorded high signals for C and O<sub>2</sub>. During isolation and characterization of chemical constituents compounds 1 – 4 were isolated in pure form.

The present work will open a new window for researchers to further work on activity guided isolation from these species so that we may standardize the extract and snatch share(s) from the global market.