
ABSTRACT

Silybum marianum (L.) Gaertn. is the most important medicinal plant. The present study was designed to investigate the affect of callus extracts on growth of selected bacteria, fungi and helminths. Optimization of seed germination at different soaking time and temperature was applied. Hundred percent seed germination was recorded when seeds were soaked for 12 hours and incubated at $25\pm 2^{\circ}\text{C}$. *In vitro* method for callus induction was successfully established using cotyledon and root explants. MS medium was supplemented with different combinations and concentrations of auxins and cytokinins such as BAP with IBA, BAP with IAA and NAA with IAA. Best results for callus induction were obtained through BAP with IBA.

Antibacterial activity of petroleum ether, chloroform, methanol and aqueous extracts obtained from the cotyledon and root callus was tested against both gram positive (*Staphylococcus aureus*) and gram negative (*Pseudomonas aeruginos*) bacterial strains and fungal strains (*Aspergillus niger* and *Aspergillus oryzae*) using agar well diffusion method. The test bacteria and fungi showed varied response with the type of extract. The cotyledon and root showed antibacterial activity in all the solvents used. The antibacterial and antifungal activity indicated the presence of more active compounds in methanol and aqueous extracts. Petroleum ether extract was found to be least active, whereas, chloroform extracts exhibited moderate effect on the test organisms.

The same callus extracts were evaluated for anthelmintic activity which involved the determination of time of paralysis and death of *Lumbricus terrestris*. The extracts revealed significant dose dependent anthelmintic activity as compared with Albendazole as standard reference and normal saline solution as control (160 minutes). The minimum time of mortality of worm was achieved by petroleum ether extract was 98 to 102 minutes. These results suggest the distribution of antimicrobial and anthelmintic factors of cotyledon and root extracts that can be explored further for the isolation and characterization of the effective compounds extracts.