SCIENTIFIC INVESTIGATION OF MEDICINAL PLANTS

II : BIOLOGICAL SCREENING

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Biological screening is an essential component of a scientific investigation of medicinal plants and this allows initial detection of the biologically active principle as well as its step wise monitoring during the process of extraction and purification. In every biological screening test, a living organism is used; the test plant material, its extract or purified component is introduced or exposed to the organism and after a period of incubation the response of the organism is determined. This is generally referred to as 'bio-assay' and has now become a very useful tool in the detection and isolation of naturally occurring bio-active compounds. A wide range of bio-assay techniques are now available to evaluate such properties as antimicrobial, antifungal, insecticidal, insect-antifeedent activity and fertility regulation etc., in plants. An example for such bio-assay test is briefly outlined below:

Bio-assay for antifungal compounds:

Widely used tests are Thin Layer Chromatographic bio-assay, spore germination and agar plate method.

Thin Layer Chromatographic (TLC) bio-assay:

Crude extracts or pure compounds are chromatographed on TLC plates and after air drying, the plates are sprayed with a suspension of spores of a fungus in a nutrient medium usually in Czapek-Dox medium (2g $NaNO_3$,

1g KH_2PO_4, 0.5g $MgSO_4.7H_2O$), 0.5g $FeSO_4$, 0.5g KCl, 30g sucrose in 1000ml distilled water and the solution is autoclaved for 15 min. at 15 lb and 121 C. After incubation for 36-48 h in a moist chamber the plates are examined for inhibition areas.