A SIMPLE METHOD FOR SEED TESTING

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HEALTH and germinability of seeds are assessed by standard blotter and paper towel methods[1] which are routinely practiced in seed testing laboratories by skilled personnel, but are difficult to work with by farmers. Hence an efficient and simple method was developed to assess the seed quality.

Kiln baked earthen plates of 9 cm diameter and 1 cm depth were immersed in water for 2 hr to enable the plates to retain the moisture for more than 15 days. Seed samples of pearl millet (*Pennisetum americanum*), sorghum (*Sorghum bicolor*), paddy (*Oryza sativa*), cowpea (*Vigna unguiculata*) and cluster bean (*Cyamopsis tetragonoloba*) were placed in moist petri plate chambers and moist earthen plates with and without blotters. The earthern plates were enclosed in polyethylene envelopes to avoid loss of moisture. The incubation conditions were near ultraviolet and daylight fluorescent tubes, both with 12/12 hr cycles of light/darkness at 22 ± 1°C and room conditions. Incubated seeds were analysed for the incidence of fungi and seed germination was recorded. Seeds incubated in the earthen plates without blotters under ambient conditions revealed a significant increase in the total per cent incidence of seed-borne fungi in all the crops tested and, remained higher than the other two methods. Seed germination increased significantly in the earthen plates. The incidence of some pathogenic fungi like *Alternaria tenuissima*, *Drechslera oryzae*, *D. halodes*, *D. setariae*, *Fusarium moniliforme*, *F. oxysporum*, *Phoma sorghina*, *Macrophomina phaseolina*, *Trichoconiella padwickii* and storage fungi like *Aspergillus flavus* and *A. niger* were favoured by the earthen plate method. The fungi growing on the earthen plates can also be identified macroscopically based on their colour and colony characters.

The use of earthenware in seed health testing has been reported earlier[2], but it is not as simple as the method that is described in the present investigation which is more practicable, economical and accessible to the agriculturist.

2 March 1987; Revised 25 March 1987

1. Anonymous, *Seed Sci. Technol.*, 1976, **4**, 3 and 50.
2. Jayanandarajh, P., *Seed Sci. Technol.*, 1983, **11**, 595.

OVARIAN DYSFUNCTION AND MORPHOGENETIC DEFECTS INDUCED BY *ORIGANUM VULGARE* L. OIL IN THE RED COTTON BUGS

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THE use of essential oils of plant origin in insect control has recently been reviewed[1]. There are some reports pertaining to the efficacy of essential oils to induce morphogenetic effects[2-4] and gonadal disorders[5-7] among a variety of insects. In view of the fact that essential oils have a potential to control insects, the oil of *Origanum vulgare* was investigated to determine its efficacy against red cotton bugs, *Dysdercus koenigii* F.

O. vulgare was collected from Kashmir (2135–3660 m altitude), shade-dried and subjected to steam distillation to obtain a pale yellow oil (0.2%) of pleasant smell, sp. gravity of 0.8812 and $(\alpha)_D^{27}$ of 1.5°. The separation of active fraction was tried by sequential fractionation using alumina column. The benzene fraction obtained in the fractionation was found to be active and subjected to preparative TLC for further purification.

D. koenigii was reared in the laboratory at 27 ± 1°C and 70–75% RH and 16 hr photophase. Adults of both sexes (0–2 hr-old) were topically treated with 5–40 μg oil or 1.25–5 μg of benzene fraction in 2 μl of acetone. Separate controls using acetone alone were also run simultaneously for comparison. Immediately after treatment each female was separated with a normal male and vice-versa for pairing. The number of eggs oviposited (fecundity) and per cent hatch (fertility) were recorded. A cumulative sterility index (SI) was calculated as described earlier[8]. For each treatment 6 pairs of insects were used. Out of these three females were removed at random prior to oviposition (4–5 day old) and their ovaries dissected out in Ringer's saline for morphological examination. To study the morphogenetic effects, if any, the 5th instar larvae were similarly treated topically in three replicates of 10 larvae each. The morphogenetic changes like adultoid formation or supernumerary instars etc were recorded. The ovaries from the adultoids (day 6) were also studied.

The observations (table 1) demonstrate complete sterility at 20 and 40 μg oil treatment showing gradual spurt in SI from 5 to 40 μg level. This was