28 ± 2°C. The media were prepared according to the formulae given by Ainsworth[9]. The colour, shape and diameter of colonies, shape and size of pycnidia and pycnidiospores, nature of mycelium and pseudomycelium, and quantity of chlamydospores produced were recorded after a week.

It was observed that morphology and cultural characters of *C. albicans* were significantly affected by different nutrient media (table 1). The present findings agree with those obtained earlier[1-7]. Growth rate was variable, but shape and colour of the colonies were more or less stable. Formation of chlamydospores was seen in nearly all the test media. The present findings agree well with the results obtained by Rajak and Rai[6]. Kafi and Tarr[4] reported that conidia of *Helminthosporium* species showed remarkable variation in size on different media. Rajak and Rai[6] found that morphology of pycnidiospores of 18 species of *Phoma* was very different on different nutrient media. Singh[5] reported that size and morphology of the conidia of *Phyllosticta cestri* and *Phyllostictina artocarpina* were similarly affected. In the present investigation also, size of blastospores of *C. albicans* was different on different nutrient media. Dorenbosch[10] used chlamydospores as the diagnostic character for differentiating the species of *Phoma*.

On the basis of the above findings, it is obvious that one character cannot be used for identification of the species of *Candida*; several characters, such as colour and shape of colonies, shape and size of blastospores, characteristics of mycelium and pseudomycelium, and formation of chlamydospores, should be considered.

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IMPACT OF DIFFERENT LIQUID MEDIA ON AMYLASE PRODUCTION BY SEED MOULDS OF PEARL MILLET (*PENNISETUM AMERICANUM* (L.) LEEKE)

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DETERIORATION of seeds is usually attributed to the action of amylase secreted by seed-borne fungi. A study of pearl millet (*Pennisetum americanum* (L.) Leeke) seeds revealed constant association of certain fungi responsible for seed deterioration. The present work was carried out to assess the ability of amylase secretion of these fungi.

Seventeen test moulds were isolated from pearl millet seeds collected from field and storage. Amylase production by the moulds was studied by using three different substrate and non-substrate liquid media. Among the fungi isolated, *Aspergillus flavus* and *Curvularia lunata* were found to be highly efficient in amylase production while fungi like *Cladosporium cladosporoides* and *Memnoniella* sp. were found to be not as efficient. Starch medium was superior, compared to pearl millet flour and glucose media, for amylase production by most of the tested fungi.

The agar plate method was employed for isolation of seed-borne fungi. The substrate was 1% starch in a medium containing 0.25% KNO_3, 0.1% KH_2PO_4, 0.05% $MgSO_4 \cdot 7H_2O$. Flasks containing medium (25 ml) were inoculated with spore suspensions of the test fungi and incubated at 25 ± 1°C for 8 days. The culture filtrates were then collected. Sterilized starch assay agar medium (soluble starch 10 g, Na_2HPO_4 2.84 g, NaCl 0.35 g, agar 15.9 g, distilled water 1000 ml, pH 6.0) was poured into sterile petri plates, and 0.2 ml of culture filtrates were placed in a

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Table 1 *Amylase production by seed moulds of pearl millet in three liquid media*

Species	Activity zone (cm)		
	Glucose medium	Starch medium	Pearl millet flour medium
Alternaria alternata	1.4	2.1	1.8
Al. tenuis	1.6	2.5	2.4
Aspergillus flavus	1.7	3.5	1.9
As. niger	2.2	1.6	0.9
Cladosporium cladosporoides	0.0	0.0	0 0
Curvularia lunata	1.5	3.0	2.0
Cu. pallescens	1.4	1.6	1.7
Drechslera longistrata	1.6	1.6	1.9
D. tetramera	2.4	1.9	1.6
Fusarium moniliforme	1.4	2.3	2.0
F. oxysporum	2.0	1.9	1.5
F. scitectum	1.7	2.1	2.1
Penicillium funiculosum	1.3	2.0	2.0
Pythium sp.	2.5	2.7	2.1
Memnoniella sp.	0 0	0.0	0.0
Rhizoctonia solani	1 9	2.5	2.4
Rhizopus stolonifer	1.9	2.1	1.0

cavity (0.08 cm diameter) in the centre of the plates. After incubation at 28°C for 48 h, the plates were flooded with Lugol's iodine solution. The width of the non-blued zone around the cavity was measured and the results were recorded as the average of two replicates.

It is clear from table 1 that of the seventeen fungi tested, *A. flavus* and *C. lunata* were highly efficient in amylase production, forming 3.5-cm and 3.0-cm zones respectively. *Cladosporium cladosporoides* and *Memnoniella* sp. were not capable of amylase production.

It is interesting to note that the starch medium was superior, compared to glucose and pearl millet flour media, for amylase secretion by all the fungi except *Aspergillus niger*, *Curvularia pallescens*, *Drechslera longistrata*, *D. tetramera* and *Fusarium oxysporum*. Pearl millet flour medium was the test for *C. pallescens* and *D. longistrata*, while glucose medium was the best for *Aspergillus niger*, *D. tetramera* and *F. oxysporum*. In addition to starch, pearl millet contains proteins and lipids. The superiority of pearl millet flour medium over glucose medium can be attributed to the additional nutrients, which probably stimulated amylase secretion. Similar work was done on jowar flour medium by Wadje and Deshpande[7].

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PHYSIOLOGICAL BASIS FOR THE INHIBITION OF NITROGENASE ACTIVITY IN WATER-STRESSED COWPEA (*VIGNA UNGUICULATA* (L.) WALP)

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NITROGENASE activity was found to be extremely sensitive to water stress in many leguminous crops[1-3]. Even a mild water stress (0.5 MPa decrease in plant water potential) leads to more than 50% drop in total nitrogenase activity (TNA) in many crops[1,3,4]. However, other physiological processes like photosynthesis, transpiration and nitrate reduction are comparatively less affected at a similar plant water status[2,4]. But there has been a controversy whether the high sensitivity of nitrogenase activity is due to dehydration effects on the enzyme in the nodules or indirect causes like limitation of photosynthate supply from the shoot. In earlier studies, Huang *et al.*[5] indicated that in water-stressed soybean, photosynthate supply from the shoot essentially limited nitrogenase activity in the nodules. However, more recent studies[6-8] have indicated direct effects of dehydration on the nodules to be primarily responsible for the drop in nitrogen fixation rate in soybean and other annual legumes. In the present communication we report the results of stem girdling experiments designed to evaluate the role of host photosynthate limitation on the inhibition of nitrogenase activity in normal and water-stressed cowpea plants.

Cowpea plants (cv. C-152) were grown in glazed