di-acetate, still bearing the free tertiary hydroxy group. From these data, it was concluded that the isolated compounds are new[7] and closely related to cyto-chalasine-D[9-10] (Zygosporine-A)[8]. Therefore, compound I is named Paspaline-P. A number of important biological properties are attributed to cytochalasines[11].

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BHIDE and PENDSE[12] have shown that these compounds, given by i.p. injection in dogs at doses of 1–2 mg/kg are found to proceduce an effect of tranquility to a certain extent with tremors, ptosis and depression of motor activity. Arousability was present with occasional vomiting or sometimes a bowel motion. There was a good recovery in all these cases. The action of these compounds in mice in doses of 1 mg/kg is problematic. It is not possible to say at present whether the effects observed in dogs can be interpreted as tranquillity or whether they indicate some other kind of activity on CNS, which may be of interest.

Zusammenfassung. Aus dem neuen Mikroorganismus *Phomopsis paspali* wurden zwei neue Metabolite, Paspali-P und dessen Desacetylderivat isoliert, die zur Klasse der Cytochalasine gehören.

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Effect of Cobalt^{60} γ-Radiations on the Biological Activity and Some Physical and Chemical Properties of Oxytetracycline

The possibility of utilizing ionizing radiations for sterilization of antibiotics is receiving considerable attention. Earlier studies[1,2] have shown that Co^{60} radiations affect some antibiotics by way of changes in physical characteristics and chemical properties, with no change in their potency. In the case of streptomycin, dihydrostreptomycin, pasomycine, streptopenicillin and minomycin, some losses in potency have been known to occur[3-5].

In the present investigation, an attempt has been made to determine the effect of Co^{60} γ-radiations on the biological activity and some physical and chemical properties of oxytetracycline.

Materials and methods. *Staphylococcus aureus* NCTC 6571[6] and *Escherichia coli* 06[7] were used. The general procedure of work was adapted from CRUICKSHANK[8]; the details regarding the experimental techniques, viz. the maintenance of organism, incubation temperatures, method of testing of antibiotic activity and the irridiation procedures have already been described elsewhere[9].

Oxytetracycline was irradiated in the dry state[10] using Co^{60} source at the rate of 0.356 m-rad/h. The duration of exposure was adjusted to utilize doses of 5, 10 and 15 m-rad in 3 different samples each.

Results and discussion. The observed effects of γ-radiations upon the activity of oxytetracycline on *Staph. aureus* and *E. coli* at the stated levels, are summarized in the Table. Whereas no deletrious effect on the activity of the antibiotic was observed at 5 and 10 m-rad doses, the activity against both the organisms was found to be completely lost at 15 m-rad dose. These findings are at variance with the earlier reported observations[3]. Marked changes in pH and colour were also detected at 15 m-rad dose exposure.

A study of the various samples of oxytetracycline (non-irradiated and the ones irradiated at the 3 stated doses) revealed that the absorption maxima of the untreated compound located at 353 nm was lost and an absorption plateau appeared at about 215-245 nm in the case of the sample irradiated at 15 m-rad dose only. This

Effect of different doses of Co^{60} γ-irradiation upon the activity of oxytetracycline against *Staph. aureus* and *E. boli*, its pH and colour.[a]

Dose (m-rad)	Activity in terms of Zone Diameter (mm)/5µg antibiotic disc		pH	Colour
	Staph. aureus	*E. coli*		
0	27	23	3.0	Yellowish white
5	26	24	3.0	Yellowish white
10	26	23	3.4	Yellowish white
15	0	0	8.0	Grey

[a] Results shown are the mean values of 3 replications

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effect obviously points to gross changes in the molecular organisation of the compound as the result of irradiation at the higher doses.

This fact received further corroboration from the results of the IR absorption studies. It was observed that the samples irradiated at 5-and 10-m-rad doses gave IR spectra identical with the non-irradiated compound, whereas the sample irradiated at 15 m-rad dose resulted in a curve with non-resolution appearance of IR spectra. It indicates that a complex mixture has been formed. Apparently there are pronounced changes produced at 1 or more of the 4 asymmetric centres said to be responsible for the activity of tetracycline molecule[11] when irradiation is done at 15 m-rad dose.

A more detailed chemical investigation of the 15-m-rad-irradiated sample is in progress. However, it can safely be recommended that for sterilization of oxytetracycline in the solid state, the gamma-radiations used should be below 10 m-rad-dose in order to preserve its antibiotic activity intact.

Zusammenfassung. Nachweis, dass die Bestrahlung von Oxytetracyclin mit Cobalt-60-Gammastrahlen, in Abhängigkeit von der Strahlendosierung, zu einem Wirksamkeitsverlust des Antibiotikums führt.

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Association of *Candida tropicalis* with Maize Stalk Rot[1]

Candida tropicalis (Cast.) Berkhout frequently occurs as a commensal and occasionally as a pathogen in man and animals (Kawabita and Van Uden[2]; Hurley[3]; Gentles and La Touche[4]; Thirumalachar[5]). It has also been reported from soil (Gugnani and Shrivastava[6]). So far as is known, this fungus has not been found to be associated with plant disease, although it has been recovered from plant or vegetable materials such as rotten pine apples (Lodder and Kreger Van-Rij[7]), Sauerkraut, Sakura-miso, blackstrap molasses, kefyr, etc. (Miranda, personal communication). A stalk rot disease of maize was observed in February–March, 1971, at Hyderabad and in August, 1971, at Udaipur from which a yeast-like fungus was isolated. Again in 1972 the same fungus was recovered from maize stalk rot samples collected from Jullundur.

Material and methods. Stalk rot material collected from Hyderabad and Udaipur was plated on potato-dextrose agar. The resulting growth was purified by single sporing. For inoculations, the suspension of fungus growth was prepared and syringe inoculated in nodes and internodes. The approximate density of propagules was 10^5/ml. The punctures were sealed with wax or grease. Cultural, biochemical and physiological characters were determined in accordance with the methods described by Lodder and Kreger Van-Rij[7].

Results and discussion. Colonies on glucose-yeast-extract and peptone agars creamish or slightly dull white, opaque, raised with crenate margins, pellicle on potato-dextrose broth with sedimentation. Cells of yeast-phase subglobose to short ovoid or ovoid, occasionally sausage-shaped, rarely cylindrical, 10–14 × 5–8 µm; pseudomycelium consists of ramified chains of pseudohyphae on which clusters or chains of globose to ovoid or slightly elongate, acro-pleurogenous blastospores with rounded ends are produced (Figures 4 and 5); true mycelium is also present.

Within the stalk the fungus was found in the filamentous mycelial phase intracellularly in the pith parenchyma (Figure 6). 'Control' stalk injected with sterile water did

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Pathogenicity tests with 2 isolates of *Candida tropicalis* on maize

	Host cultivar	Age of plants (days)	No. of plants inoculated	No. of plants whith disease	Period after disease appeared (days)
In field	Composite opaque (Shakti)	40	2	2	10
	Ganga 5	70	23	5	25
In glass house	Basi (local)	30	4	3	20
		60	4	4	10
		40	10	5	25
Cut stalk	Kisan composite	60	4	4	6
	Kisan	50	4	4	6
	Ganga 5	60	7	7	5