CONTRIBUTION TO THE STUDY OF FUNGISTATIC ACTION OF
N,N'-bis-n-butylamid of 2,2' dicarboxydiphenyldisulfide
(OD 507)

by

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(6.IX.1966)

This paper concerns a substance which was synthetized by F. GIALDI, R. Ponci & P. CACCIALANZA (1964). These authors, starting from the idea of the special importance of sulfurous compounds for the metabolism of fungi, synthetized more than 500 of these compounds. They examined their fungistic action “in vitro” on some strains of fungi pathogenic to man. Two of these compounds were found to be interesting: N,N'-bis-n-butylamide of 2,2' dicarboxydiphenyldisulfide (OD 507) and N-cyclohexylbenzisothiazolone (Bz 17), which combined a strong “in vitro” action with low toxicity, good tolerance, stability, etc and thus were considered useful for therapeutic use.

The first results obtained by F. GIALDI et al. in 67 cases of superficial human mycosis (marginal eczema, athlete’s foot, erythrasma, pityriasis versicolor and skin moniliasis) showed the two compounds (OD 507 and Bz 17) superior to other fungicides. Our results in Kinshasa, with OD 507, confirm these results (Topical application of OD 507 in various skin conditions due to fungi, by C. ROSSETTI, F. GATTI & J. CEBALLOS to be published).

Present paper studies the action “in vitro” of OD 507 on several strains of fungi isolated from patients suffering from superficial and deep mycoses in the Congo.

THE MATERIAL

Candida albicans: three strains isolated from women suffering from vaginal candidosis;
Cryptococcus neoformans: two strains, one from a generalized cryptococcosis, the other from meningeal cryptococcosis;

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Monosporium apiospermum: one strain from a case of maduromycosis (Madura foot);
Histoplasma duboisii: two strains of African histoplasmosis, one disseminated, the other localized to lymph nodes;
Phialophora pedrosoi (Hormodendrum pedrosoi): three strains from three cases of chromoblastomycosis;
Entomophthora coronata: one strain from a Congolese patient suffering from rhinophycomycosis. This disease, found by C. W. Emmons et al. (1961) and by C. Bridges et al. (1962) on horses in Texas, has been known to affect man in one single case in Jamaica by G. Bras et al. (1965). Our patient died from this disease and is the second occurrence in man (J. Vandepitte et al. – 1966).

The Method

The culture medium was solid Sabouraud (Sabouraud Dextrose Agar – DIFCO) with chloramphenicol 0.05 % to prevent a bacterial contamination.

OD 507, being insoluble in water, was used in 95° ethyl alcohol. In order to eliminate the factor of alcohol action, the concentration of alcohol was kept constant at 1 % in the medium, being well known that alcohol concentrations of 2 % or more are apt to slow or stop altogether the growth of fungi.

The fungi: a suspension of yeast forms or spores in sterile peptonized water was used for the tests. The yeast forms (C. albicans and C. neoformans) were taken up with the loop from solid medium. One loop of yeast was suspended in 5 cc of peptonized water.

The mycelial forms (M. apiospermum, H. duboisii, P. pedrosoi, E. coronata) were treated in the following way. Fragments of mycelium were put into peptonized water, the tubes were shaken in order to separate the spores from the filaments. After a period of rest, the mycelia were seen to sink to the bottom; the liquid containing the spores was aspirated with a Pasteur pipette with a fine tip, to avoid aspiration of fragments of mycelium.

The concentration of the fungi was kept constant, in such a way that a drop of suspension between slide and cover at a magnification of \( \times 270 \) contained about a dozen yeast cells or spores per field.

Two drops of this suspension were spread out in the middle of the culture medium. The test tubes were maintained horizontally for a few minutes in order to avoid fungal growth on the glass in the lower part or on the edges.

The cultures were maintained at room temperature (about 25° C). Each strain was tested five times in order to get a valid mean value.

The strains of C. albicans, C. neoformans, M. apiospermum and E. coronata were inspected daily for a fortnight, P. pedrosoi and H. duboisii for 30 days.

At preliminary tests we tried OD 507 in concentration of 0(con-