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Failure to induce mutations in Neurospora with amino acid analogs

J. R. Baylis
University of West Florida

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Abstract

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An attempt was made to induce forward and reverse mutations with the amino acid analogs canavanine, ethionine and fluorophenylalanine. Treatment consisted of growing cultures to conidiation on 50 ml of agar minimal medium (supplemented with 100 µg/ml adenine sulfate for the ad-3 strains) containing one of the analogs at the following concentrations: L-canavanine sulfate 100 µg/ml, DL-ethionine 20 µg/ml, p-fluoro-DL-phenylalanine 4 µg/ml. These concentrations retarded growth but did not prevent conidiation. The reversion experiments employed the following ad-3 strains supplied by H.V. Malling: 2-17-8, 2-17-23, 5-4-1, 2-17-7, 2-17-61, 2-17-155, 2-17-18, 2-17-126. Each analog was tested one or more times on each ad-3 strain. The number of live conidia plated on minimal medium ranged from 10^8 to 10^9 per test. The spontaneous reversion frequencies obtained were similar to those reported by Malling and DeSerres for these strains (1967 Mutation Res. 4:425), but in no instance were the reversion frequencies of the analog treated cultures significantly higher than the controls. Similarly treated conidia of 74a were screened for mutation to resistance to cycloheximide (2 µg/ml) and resistance to benomyl (1 µg/ml). Again, the analog treated strains showed no increase in mutation frequency over the controls. These results are of interest chiefly because amino acid analog mutagenesis has been reported in several organisms including one fungus (Talmud and Lewis 1974 Genetical Res. 23: 47). - - - Biology Department, University of West Florida, Pensacola, FL 32504.