

Emerson, S. The use of heterocaryons in the maintenance of slime stocks of Neurospora crassa, and a method for the re-isolation of slime from heterocaryons.

Stocks of Neurospora crassa with slime phenotypes rapidly become inviable under conditions in which active growth ceases, making frequent transfer essential to their maintenance. The heterocaryons that have

been produced between slime strains and hyphal strains have the hyphal growth habit and can be maintained, e.g., under refrigeration, for considerable periods. The recovery of the slime component of such heterocaryons by plating conidia has not always been successful, presumably because slime nuclei are in the minority. In such cases slime has been recovered by the following method.

The heterocaryon is inoculated into a liquid medium of high osmotic concentration, lacking the nutritional element required by the hyphal parent of the heterocaryon but supplemented with that required by slime parent if it has one. High osmotic concentration is ordinarily obtained by adding 10 per cent sorbose to the standard medium. Growth in such liquid media consists of heterocaryotic hyphae and spheroplasts which are largely slime in composition. Hyphal growth is removed by filtration through glass wool and the suspension of spheroplasts is plated on an agar medium of standard osmotic concentration, supplemented, when necessary, to satisfy the growth requirement of the slime component. Persistent slime colonies are picked from the plates. It is sometimes advantageous to permit further growth of the spheroplast suspension, and to filter a second time before plating, as this frequently results in a pure stand of persistent slime. Caution: heterocaryons so far tested have all carried os in both components. Inasmuch as pure os strains themselves produce some spheroplasts in liquid media of high osmotic concentration, behavior different from that described may be expected if os is present in only the slime component of a heterocaryon. (Supported in part by an N.S.F. Grant, G-6174, and in part by a U.S.P.H.S. Grant, N.I.H. GM-0965.)--Division of Biology, California Institute of Technology, Pasadena, California.