

## A putative fifth heterothallic species in *Neurospora*

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## A putative fifth heterothallic species in *Neurospora*

### Abstract

Among *Neurospora* cultures sent to us by Daniel Le Pierres and Assienan Bernard from the vicinity of Abidjan, Ivory Coast, were two mixed cultures that made 8-spored asci when inoculated to synthetic crossing medium of Westergaard and Mitchell (1947) with filter paper as the only carbon source. Pure cultures of each mating type were obtained from conidial platings and were found to be sterile with all of the previously known species but highly fertile with some other Ivory Coast cultures (21 in addition to the first four). For all of these strains there has not been any mating reaction observed with *N. sitophila* or *N. discreta*, but it is barely possible to assign mating type from spot crosses on a lawn of *N. crassa fl*, and under optimum conditions there is sometimes formation of barren, unbeaked perithecia with *N. intermedia*. The new strains do not act as female parents on medium to which sucrose has been added.

# A putative fifth heterothallic species in *Neurospora*

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(See also A. Fairfield and B.C. Turner, 1993. Substitution of paper for sucrose can reverse apparent male sterility in *Neurospora*.)

Among *Neurospora* cultures sent to us by Daniel Le Pierres and Assienan Bernard from the vicinity of Abidjan, Ivory Coast, were two mixed cultures that made 8-spored asci when inoculated to synthetic crossing medium of Westergaard and Mitchell (1947) with filter paper as the only carbon source. Pure cultures of each mating type were obtained from conidial platings and were found to be sterile with all of the previously known species but highly fertile with some other Ivory Coast cultures (21 in addition to the first four). For all of these strains there has not been any mating reaction observed with *N. sitophila* or *N. discreta*, but it is barely possible to assign mating type from spot crosses on a lawn of *N. crassa fl*, and under optimum conditions there is sometimes formation of barren, unbeaked perithecia with *N. intermedia*. The new strains do not act as female parents on medium to which sucrose has been added.

A serious problem in designating a new species in *Neurospora* is created by the crossing behavior observed for *N. discreta* (R. Maheshwari, personal communication). Sometimes two strains which have already made fertile crosses to *N. discreta* testers will fail to show any mating reaction to each other. Progeny may fail to cross to their own parents. Furthermore, most *N. discreta* strains resemble the new group in not acting as female parents on medium that contains sucrose. For these reasons, several different *N. discreta* testers were used with the new strains, and reciprocal crosses were made. No reaction was observed. The reaction of the new strains with *N. intermedia* also contrasts with *N. discreta*, which never produces even rudimentary perithecia with *N. intermedia*.

We conclude that these strains constitute a new species, which has been provisionally named *Neurospora celata* (Latin meaning "concealed"). Strains P4312 A (FGSC 6859) and P4376 a (FGSC 6863) have been designated as species testers. A preliminary survey was made of unidentified strains from other countries. One or two *N. celata* cultures have been identified from Congo, Gabon, Malaya, Mexico, Puerto Rico, Singapore, and Rarotonga. Collections in Mexico were made by Robert Metzenberg, and in Rarotonga by Ross Beever. The two Rarotonga strains (P4090 A, FGSC 6853; P4092 a, FGSC 6854) carry a Spore killer factor to which the standard *N. celata* testers are sensitive.