Hsu, K. S. New ocriflovin-resistant mutants and a gene affecting conidiotion, which are expressed only in the presence of a morphological mutant.

The mutant strains listed below were isolated at the Instituto Interamericano de Ciencias Agricolas de la OEA, Turrialba, Costa Rica, in 1967. Although it was not possible to complete the study, sufficient information was obtained that they moy be useful to other investigators, and cultures hove been deposited in the Fungal Genetics Stock Center.

All originated in the strain cr$^{L}$; cot-1; ylo-1 A (FGSC#191) obtained from D. D. Perkins. The cr; cot; ylo strain was already heterokaryotic for two apparently spontaneous morphological mutations, KH160 and KH161, when on experiment was begun on induction of acriflavine-resistant mutants by gamma rays. Thus a special type of acr mutant could be detected, where the resistance phenotype is manifested only in the presence of the morphological mutant. Neither morphological KH160 or KH161 is by itself resistant. The morphological mutation segregates from acriflavine resistance in all cases except one, designated acr-6 mo (K19 KH160). (Since the two traits hove not been separated by recombination, on alternative interpretation would be to consider ocr-6 as a second-step mutant of mo(KH160) to a resistant allele.)

KH27 and KHI65 were isolated following gommo irradiation; the other new mutants received no mutagenic treatment. The study was terminated before it could be determined whether morphological mutants other than KH160 or KHI61 would allow expression of resistance, or whether acr-4 or acr-5 were expressed with either KH160 or KH161. All three acr mutants are capable of growth in the presence of 50 µg acriflavine per ml, when in combination with the appropriate morphological mutant.

Table 1. New acriflavine-resistant strains.

| Stock | Isolation Number | Linkage Group |
|---|---|---|
| cr; cot-l, grey A | cr$^{L}$; C102, KHI65 | IR; IVR, IVR |
| cr; cot-l, grey; ylo-1 a | cr$^{L}$; C102, KH165; Y30539y | IR; IVR, IVR; VI |
| Note 1. grey: grey conidiation in the presence of crisp. A cross of wild type x cr; grey gave 65++ : 23 cr+ : 23 cr grey. | | |
| Note 2. grey appeared to be linked with cot-1. Among cr isolates of cross wild type x cr; cot grey, 1 1 cr++, 14 cr cot grey, 0 cr+ grey and 1 cr cot+ were observed. | | |
| acr-4; mo(KH160) A | KH16; KH160 | 1L; IIIR |
| Note 1. acr-4 requires simultaneous presence of morphological mutant gene KH160 to manifest acriflavine resistance phenotype | | |
| Note 2. acr-4 is linked to mating-type, but is not allelic to acr-3. Two sensitive isolates were found among 78 tested from the cross KH16; KH160 x acr-3(KH8); KH160. | | |
| Note 3. A cross with alcoy indicated that KH160 is in IIIR or VI. Since independent segregation between KH160 and ylo-1 hod been observed in another cross, KH160 appears to be in IIIR. | | |
| acr-5, mo(KH161) A | KH27, KH161 | I or II |
| acr-5, mo(KH161) a | KH27, KH161 | I or II |
| Note 1. acr-5 requires linked morphological mutation KHI61 for phenotypic manifestation of acriflavine resistance. | | |
| Note 2. A cross with alcoy indicated that KH161 is in I or II. Hence, acr-5 is also in I or II. | | |
| acr-6, mo(KH160) A | KH19, KH160 | IIIR |
| ocr-6, mo(KH160) a | KH19, KH160 | IIIR |
| Note 1. acr-6 is inseparable from KH160 in IIIR (no recombinants among 360 progeny from a cross with wild type ). | | |

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