Metzenberg, R. L. and S. K. Ahlgren. Variation in the genus Neurospora of the properties and control of aryl sulfatase.

There is much gene polymorphism in the genus Neurospora, and a number of investigators have used to advantage nuclear or cytoplasmic traits that occurred first in exotic races of N. crassa or in related species. Some of these traits apparently exist in nature, whereas others have been isolated as mutants in the laboratory. We have found that natural polymorphism within the genus is a good source of usable variants with respect to both structure and level of aryl sulfatase. For example, the "standard" strains of N. tetrasperma used by Dodge and by most subsequent investigators (85A, 85a, 87, 340.6aE, 343.6AE, 394.4Ae and 394.5ae) and the Liberia strain collected by Harbel ore devoid of aryl sulfatase. Crude extracts of the Honduras strain of N. tetrasperma and of the N. toroi strain designated "no #, secondarily homothallic" (incorrectly listed in FGSC Neurospora Stock List 4th Revision under N. intermedia) contain on active aryl sulfatase of slower anodic mobility in electrophoresis than that of N. crassa 74-OR8-1a. The N. tetrasperma strain 2521. 12-ae isolated by Raper in Argentina contoinr on aryl sulfatase of mobility indistinguishable from that of N. crassa 74-OR8-1a. Under conditions of derepression, on assortment of N. sitophila strains gave lower (Arlington APC-A, Beale APC-A, 1090) or much lower (20, 3A, J1131X) levels of aryl sulfatase than did N. crassa 74-OR8-1a. Neurospora species Panama (UP203)A and Panama (4NH86B) also gave very low levels. N. species New Zealand M-lo and New Zealand S-3a shaved abnormally high levels of this enzyme, whereas N. species N2798a appears to lock normal repression of the enzyme by sulfate and by methionine (Marzluf and Metzenberg 1968 J. Mol. Biol. 33:423). A full account of these findings will be published elsewhere in due course.

All the strains discussed above were supplied by the Fungal Genetics Stock Center. ▪ ▪ ▪ Deportment of Physiological Chemistry, University of Wisconsin, School of Medicine, Madison, Wisconsin 53706.