Mitotic crossing-over induced by two commercial herbicides in diploid strains of the fungus Aspergillus nidulans

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Received October 7, 2009
Accepted December 13, 2009
Published February 9, 2010

ABSTRACT. Some herbicides are suspected of promoting teratogenic, carcinogenic and mutagenic events. Detection of induced mitotic crossing-over has proven to be an indirect way of testing the carcinogenic properties of suspicious substances, because mitotic crossing-over is involved in the multistep process of carcinogenesis. We examined mitotic crossing-over induced by two commercial herbicides (diuron and trifluralin) in diploid strains of Aspergillus nidulans based on the homozygotization index. Low doses (2.5 μg/mL) of diuron were sufficient to increase the mean homozygotization index in 2.1 and 11.3 times for UT448//UT196 and Dp II-I//UT196, respectively, whereas the same dose of trifluralin increased this mean only 1.2 (UT448//UT196) and 3.5 (Dp II-I//UT196) times, respectively. The lower homozygotization index value found for trifluralin could be due to its interference with mitotic crossing-over in eukaryotic cells. We concluded that the diploid Dp II-I/UT196 of A. nidulans is more sensitive to organic compounds than UT448//UT196;
these compounds cause recombinational events at a greater frequency in the latter diploid. This system holds promise as an initial test for carcino- genicity of organic compounds, including herbicides.

**Key words:** Diuron; Trifluralin; Herbicides; Mitotic crossing-over; *Aspergillus nidulans*; Genotoxic agents