THE USE OF COLCHICINE (MUTAGEN) FOR YIELD AND OTHER AGRONOMIC TRAITS IN SESAME (*Sesamum indicum* L.)

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ABSTRACT

The effect of different concentrations of colchicine on the yield and other agronomic traits of three varieties of sesame (*Sesamum indicum* L.) were investigated in 2007 and 2008 at the Botanical Garden of the Department of Biological Sciences, Ahmadu Bello University Zaria Nigeria. The seeds of the three sesame varieties (*EX-SUDAN*, *YANDEV* AND *E-8*) were all treated with a chemical mutagen known as colchicine, at five different concentrations (0.1mM, 0.5mM, 1.0mM, 2.0mM and 0.0mM as control) with the aim of improving the yield of the crop. The treated seeds were planted in a Completely Randomized Block Design and data were taken for two mutant generations (M_1 and M_2). The results obtained from the M_1 generation revealed highly significant increase ($P \leq 0.01$) in the germination percents 1 Week After Planting (1WAP), height at maturity, number of leaves/plant, internodes length, number of pods/plant and number of seeds/pod with decrease in the concentrations of colchicine. Furthermore, significant increase ($P \leq 0.05$) was found in 1000 seeds weight. However, the number of days to flowering decreased with decrease in the colchicine concentrations. More so, the M_2 results revealed highly significant increase ($P \leq 0.01$) in all the selected traits with decrease in colchicine concentrations except the number of seeds/pod where the effect of the mutagen was significant ($P \leq 0.05$). The yields of the three varieties of sesame were found to increase significantly by the application of lower concentrations of colchicine. Therefore, lower concentrations of colchicine (0.1mM and 0.5mM) were found to be more useful in increasing the yield and other agronomic traits of sesame.

Key Words: Colchicine, Ex-Sudan, E-8 and Yandev.
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