ASSESSMENT OF GENO- AND CYTOTOXIC EFFECTS OF PROPINEB USING ONION APICAL ROOT MERISTEM

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In this study, morphotoxic and cytogenotoxic potency of trade formulation of Propineb were analyzed using Allium cepa assay. The root tips were treated with different concentrations of fungicide Propineb for 24, 48, 72 and 96 h. The effects of propineb on morphological parameters and cytological effects were determined. It was found that Propineb significantly increased the percentage of total abnormality at all concentrations of the Propineb and these increases were dependent on the increasing concentrations for 24, 48 and 72 h. It was determined mitotic chromosomal abnormalities such as irregular metaphase, stickiness, c-mitosis, micronucleus, vagrant chromosomes and bridges. These results lead us to the conclusion that Propineb may have genotoxic and cytotoxic properties due to induction in the frequency of total abnormality and a reduction in mitotic index in root tip cells of A. cepa L. It should be necessary to be careful when using pesticides in agricultural areas and should take precautions.

Key words: *Propineb, fungucide, chromosomal aberration, mitotic index*

ОЦІНКА ГЕНО- І ЦИТОТОКСИЧНОГО ВПЛИВУ ПРОПІНЕБУ НА АПІКАЛЬНУ МЕРИСТЕМУ КОРЕНЯ ЦИБУЛІ

Метою цього дослідження було вивчення морфотоксичного та цитогенотоксичного потенціалу препаративної форми пропінебу за допомогою аналізу *Allium cepa*. Кінчики коренів обробляли різними концентраціями фунгіциду Пропінеб упродовж 24, 48, 72 і 96 год. Було встановлено вплив Пропінебу на морфологічні параметри та цитологічний ефект. Було визначено, що Пропінеб значно підвищує відсоток загальної аномальності при всіх застосованих концентраціях, і ці підвищення залежать від концентрації, яка зростає упродовж 24, 48 і 72 год. Також було встановлено аномалії мітозу хромосом, зокрема, аномальну метафазу, хромосоми, що злиплися, К-мітоз, мікроядерце, блукаючі хромосоми та мости. Отримані результати дозволили нам дійти до висновку, що Пропінеб може мати генотоксичні та цитотоксичні властивості завдяки індукції частоти загальної патології та зниженню мітотичного індексу в клітинах кінчика кореня *A. cepa* L. Потрібно обережно застосовувати пестициди на полях сільськогосподарського призначення та вживати застережних заходів.

Ключові слова: Пропінеб, фунгіцид, хромосомні аберації, мітотичний індекс.

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