

ABSTRACT

Induced mutagenesis has been extensively used to improve main crop species, particularly cereals including barley (*Hordeum vulgare* L). The main strategy in mutation-based breeding is to upgrade the well adapted plant varieties by improving a few desirable major traits such as yield component, tolerance to biotic and abiotic stress for consumer preferences. The present experiment was set out to determine the effects of induced mutagenesis on agronomic traits in mutant barley. The experiment was carried out in University of Eldoret research field in May –August 2012. One hundred and eighty three mutant lines were selected and used in the experiment with the parent (Nguzo) as a check. They were laid in a randomized complete block design with three replicates. The following parameters were used for the study; Number of tillers, plant height, a thousand seeds weight, spike length and days to 50% heading. The data obtained were analysed by Genstat software and mean separated by Duncan Multiple Range test. It was found that muta had a significant effect on number of tillers, plant height, weight of 1000 seeds, spike length and days to 50% heading at $P < .001$. From the results it is evident that mutagenesis had effects on agronomic traits in mutant barley lines hence can be used in creation of the much needed variation in breeding strategies in barley. The barley mutant lines that had superior characteristics in terms of the agronomic traits could be advanced and used in breeding programme or released as varieties.