Improving peanut (arachis hypogaea L.) characters using radiation and chemical mutagens

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5. SUMMARY AND CONCLUSIONImproving peanut (Arachis hypagaea L.) characters us-ing radiation and chemical mutagens:Peanut is one of the most important legumes groups many investigators triad to improve this crop by using the physical and chemical mutagens by induce genetic variance and selection the test mutant lines which have high yield characters. For this rea-son the main objective of this study was treated two peanut cul-tivars G5 and G6 by three mutagens to induce genetic variances gamma ray doses were 100, 200, 300 and 400 GR and Ethyl-methane selphanate by concentrations 1, 2 and 3 M and sodium azide by concentrations 1, 2 and 3 mM in addition the untreated control. The seeds were grown in 2002, 2003 and 2004 seasons to induce MI, M2 and M3 concentration respectively. The design used was split plot design.Character studied:Number of pods/plant, number of seed/plant, weight of pods and seeds/plant, 100 seed weight, number of seeds/pod, shelling percentages, oil and protein content of seeds genetic pa-rameters were phenotypeic and genotypic variance, heritability and genetic advance feren selection.The data indicated that: In M1 generation:No significant differences between the two cultivars in all character studied. On the other hand muntagenic treatments andSummary and Conclusion -121-interactions between varieties and mutagenic treatments had a highly significant differences in all character studied.As for gamma ray, the increasing of gamma rat doses de-creasing of character studies. On the contrast the low dose (100 GR) increased yield and its components as compared with the control.As for chemical mutagens (Ethylmethan sulphonate and so-dium azide concentrations. All concentrations of sodium azide and the concentrations 1 and 3 mM (EMS) increased signifi-cantly seed yield and its components as compared with untreated control. The interaction 3 mM in G5 and 3mM sodium azide in G6 produced height seed yield and its components.In M2 generation:In G5 variety, the low doses of gamma ray (100 and 200 GR) caused a significant increase in most character studied on the contrast the high doses (300 and 400 GR) caused a signifi-cant decrease in most character studied phenotypic and geno-typic variance as well as heritability increased by high doses of gamma ray 300 and 400 GR. The high concentration of Ethyl-methan sulphonat and sodium azide increased significantly seed yield/plant and its components as compared with the control. The concentrations 2 and 1 mM from EMS and S.A increased genetic parameters respectively.In G6 cultivar:The low doses of gamma ray 100 and 200 GR caused a significant increase in most character studied in comparison with the untreated control. The concentrations of 1 and 3 mM from Ethylmethan sulphonate and sodium azide produced the higherSummary and Conclusion -122-increase in means of yield and its components as well as genetic parameters.In M3 generation:Results showed that the mutant lines 6, 7 and 8 which were produced from 200 and 300 GR of gamma ray and the mu-tant lines 14 and 15 which were produced from the concentra-tions 2 and 3 mM from Ethylmethan sulphonat also the mutant lines 17, 20, 21 and 22 which were produced from sodium azide (1, 2 and 3 mM) produced a significant increase in seed yield and its components in G5 cultivar.On the other hand mutant line 2, 3, 5 and 6 which were produced from treated seeds with gamma ray doses 100 and 200 GR also mutant line 17 which was produced from treatment 3 mM Ethylmethan sulphonat and the mutant lines 20, 21,

24 and 25 which was produced from treatments 1 and 3 mM sodium azide produced the high significant increase in seed yield and its components.Summary and Conclusion -123-