INVESTIGATION OF PISTACHIO MICRO PROPAGATION (PROLLIFERATION) PISTACIA (VERA L.)

M.kalantar
Department of plant pathology,Yazd Branch,Islamic Azad university,Yazd,Iran.
Corres ponding E-mail adress:mkalantar@iauyazd.ac.ir

INTRODUCTION

Tissue culture and micropropogation is a branch of applied sciences in plant biotechnology witch is of critical significant these days.This has played a great role in the increase of different species of tree , shrub,herbacious and etc. it merits some a drautages such as ease of propagation , main tainauce of genetic stability , lack of time limitation and place etc has added to the importance of such a trend(1). In this research, pistachio rootstock (Pistacia vera L.) due to its prevalence in iran, the heavy cost of propagation through mating , the spread of common diseases of propagation by the current propagation methods and specially the market's demand for asexual propagation, micro propagation has been selected(2,3). The plant growth regulators of cytokinin group such as BAP, BA branching production, prolliferation and the plant growth regulators of auxin group such as NAA,IBA in rooting stage production of micro propagation of wood trees with compounds of alchaloidi in production to other of growth regulators of mentioned group lead to better results(1,3). The enviromental culture which is usable in micro propagation of the trees which have tanen,including: knop, Nigra , Ms, Dkw. And the most common organ for explant of micro propagation is bud. In order to explant sterilization of micro propagation sample we can use %96 etanol and %15vitex and bleach (2).The present research is done to fidout the best environmental culture and also kind and concentration of the plant growth regulator in prolliferation production of domestic pistachio micropropation .

METHOD AND MATERIALS

In order to separate and preparation of explants,was selected the best of terminal buds of tissue culture plants,and then was separated shoot tip of terminalbud.For shoot tip sterilization of samples is using %96 etanol and %15 vitex and then washing with water. Next , after making the suitable environmental culture for micropropagation including MS ,1/2 m/s , Dkw ,1/2 Dkw,Knop,1/2Knop and division 20cc of environmental culture to testing pipes, the samples under the pressure of one atmosphere under 120 centigrade, autoclave and then the environments culture are kept in refrigerators in order to be used for cultur of explants in the due time. These including six types of environmental culture such as MS,1/2MS,knop,1/2knop,Dkw,1/2Dkw investigated in factorial statistical desing with two plant growth regulators such as BAP in four levels(0/5,1,1/5,2) milligram per liter and NAA in Three levels (0,0/1,0/2) milligram per litre , with three repetitions were studied.

The dishes which are cultured in the growth chamber with lighting of 300 lux with flu resent lamps were lit for 16 hours on and 8 hours off under 25oc and the darkness temperature of 18oc were inept.Based on the emducted research and the necessity for sub culture in order for the provocation and triggering the growth of shoots, one stage of subculture was carried with one week interval. The environments subculture were unchanged with the same hormone compoands was done for understanding the amount of growth in different stages of culture the number and length of shoots of explants using the loop of growth measures as well as the pollution and the process of growth of explants was recorded. To evaluate the effect of treatments in the rate of growth and the conditions of samples using the amount of obtained growth from the first record and the last in the sub culture process, the impact of each of the treatments in the from of factorial statistics using the software package of SAS was investigated and analyzed.

RESULTS AND DISCUSSION

Based on the results of the analysis of the variance of the models used and there effect in older to evaluate the effect of each of the special treatments was estimated: the environment of culture Dkw to other environments was preferred **.**

The effect of BAP hormon and interaction from the cytokinin group in the first stage of shooting is more than NAA hormone from the auxin group . According to figures and results, the effect of BAP hormone and its interaction with NAA in 5% level was meaning ful. But the effect of NAA was not statistically significant especially the interaction of BAP and NAA was of greater growth in the evaluation of the model which showed that adding NAA in environmental culture was the factor in the inhibitor of BAP absorption which finally leads to the inhibitor of growth and stops it. Accordingly, the results show that high usage of hormons of auxin groups must be done with care in the shooting stage.

Generally , the statistics show that the use of BAP 2milligrams per litre with the low level of NAA,(0) milligram per litre has a more proper growth in the environmental culture,Dkw, in Dkw the interactions of BAP and NAA are higher compared with other treatments but eventually the obtained results in comparison to 1/2Dkw was weaker. On the other hand, the increase of the Interactions of NAA and BAP in enmparsion with other treatments can strengthen the hypothesis that in the shooting stage, not using NAA was more effective.

finally, the best treatment for shooting stage in the micro propagation was Dkw with BAP(2mg/1) and without NAA(0 mg/1).

Kywords: pistachio, Rootstock, Tissue culture, micro propagation, prolliferation.

REFERENCES

1-Villalabos,V.D.,Leung,W.M.2004.Light-cytokinin interaction in rootformation incultured shoot tip explants of pistachio. Physiol plant. 91: 497-504.

2- Stiff, C.M., Robert, L.W.2005. In vitro culture of (pistacia vera L.). Hortscienc:447-458.

3-Kester, D.E., Gradzaiel, T.S. 2006. Pistachio genetic resurce and their use in production and in vitro culture. Agric. 43:99-109.