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Comparison of the Activity of some Soil Enzyme in soil mass of areas covered with spruce and areas with mixed alder-spruce coverage of Orchards of Siyahkal Township

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ABSTRACT: Due to the redaction of forest biomass in different areas due to indiscriminate harvesting, recent years approach on forests was artificial while planting of spruce tree is considered one of the main preferences in line with this purpose. Soil biomasses of panting of vegetation types can be directly affected on fertility process of soil. In this research we try to study and analyze effects of spruce planting and total of mixed alder-spruce vegetation on enzyme activity rate, different enzymes in soil of siyahkal town's areas. For this purpose it was sampled from 0-20 cm deep soil under spruce trees and soil under mixed visitation of spruce-older. Activity of Alkaline phosphates and phosphates acid and microbial are measured by using of reaction with substrate by spectrophotometer. Resulted conclusions demonstrated that enzyme activity in soil biomass under trees in 10-20 cm deep in mixed vegetation areas compared with areas covered spruce trees significantly faced with increase that it can be due to more microorganisms. In mixed vegetation biomasses and itself causes to attract better elements and foods.

Keywords: spruce, older, Alkaline phosphates, phosphates Acid and microorganisms .

INTRODUCTION

Generally soil quality can be found as consequent of total effects of biotic, chemistry-physical factors of soil (Khoramali & Shamsi, 2009) soil characteristics can be considered land management and climate (Onwerwmadu 2010). Method of productivity of soil affects on chemistries and physical characteristics of soil while measurement rate of these effects is possible on quality of soil action in ecosystem via quality ciboria review of soil (Lal, 2004). Mention of this notice is necessary that present and cross effects between present microorganisms and plants in soil are caused to product organic materials cycle. In recent years soil enzymes measurement is accurate method for evaluation of different biochemist rice process that occur n soil (Tabatabai & Dick NAnipierieth, 2002).

Organic phosphorus converts as it mineral form by phosphates (spear & Rooss,1973). Phosphates are necessary enzymes that product under condition of phosphorus loss. This enzyme can be known as proper indicator for mineralizing capability of organic phosphorus form and soil biotic activates (spear & Ross.1973). Phosphates are extract allure; it means they are produced by plant roots and available microorganisms in soil.

MATERIALS AND METHODS

In this research are sampled from under planted lands of siyahkal township that place in 53 minutes and 48° minimum and 34 min/50° maximum of east light and 34min/36° minimum and 27min/38^{0} maximum of north width. This township locates in light of maximum 50 m from open water level. The sampling of soil in autumn did from soil and in 0-20 cm depth of soil under spruce trees and mixed spruce and older cover ages that do not pass at least 20 years from planting time.

Samples in cold condition of a laboratory and then each sample passed from 2mm bolter. By using of sector photometer and by enzyme-substrate reaction we study activity of Alkaline phosphates and phosphates acid and soil elements in these two soil biomasses.

RESULTS

Plants and their roots can be known production references of phosphates acids in soil (Tabatabai, 1993) and the available microorganisms in soil are included releasing references of phosphates (Yadav & Tarafav, 2003) (Findenegg & Neiemans,1993). Findings of this research show that Alkaline phosphates activity in mixed coverage areas of spruce-alder in 0-20 cm depth significantly was higher than areas with single vegetation of single spruce plant while Activity of phosphates acid enzymes in mixed alder-spruce biomass significantly is lower than areas with single vegetation of spruce in 0-20 cm depth. (Benziri & Amiaud, 2005) (Bastida *et al,* 2006).

It is reported direct relation between cellular enzyme activity with vegetation that by changes of vegetation types and vegetative accumulation also change rates of enzyme activity. Accumulation increase has a direct relation (increasing) with this process. Mention of this notice is necessary that Anzymes activity in different levels and depths of soil also is variable (Chen, 2003) (Shirvani *et al.*, 1384) (Matinizadeh, 2008).

This case tor being better biotic condition and more presence of oxygen rate, Humus of organic materials (Kandeler & Eder, 1993) and nonorganic Nitrogen solution in high layers has more relationship with root rate and microorganisms. Generally It can be explained that precence of alder and spruce as mixed and produce of mixing vegetation of different areas can be caused significant differences between soil enzymes.

CONCLUSION

Phosphates acid activity in two soil biomasses of mixed spruce- alder vegetation and spruce:

There were 0/05 significant difference ($p<0.01$) in phosphates enzyme activity in soil biomass of spruce covered areas and mixed spruce and alder covered areas (Table 1). This activity in ingle planting group of spruce was 5.488 $g^{-1}h^{-1}$ pnpμg and in mixed planting of spruce-alder 4.349 pnpμg (Fig. 1).

Table 1: T-text of acid phosphates enzyme activity C $g^{-1}h^{-1}$ pnpμg) in soil samples of different mixed vegetation of tested places in 5% level.

Significant level	Calumniated (T)	Confucian distance in 95% level		Free degree	Standard devotion	mean	group
		High level	Low level				
0.312	1.156	387.577	-159.76	4	50.64	5.488	Mixed vegetation
						4.349	Single vegetation

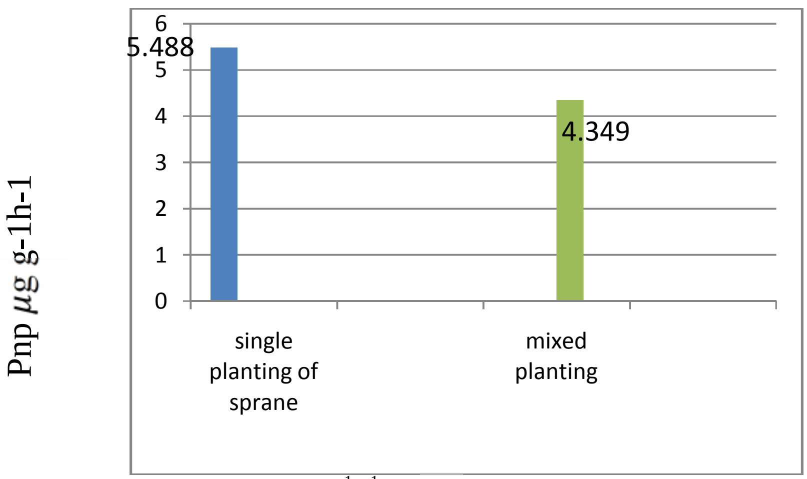

Fig. 1. Acid phosphates enzyme activity ($g^{-1}h^{-1}$ pnpμg) in soil samples of single vegetation of spruce and mixed vegetation of spruce and alder and spruce.

Results of T-test show that there is significant differences ($p < 0.05$) in Alkaline phosphates enzyme activity of two mixed and single group. Table 2: soil with mixed vegetation has more activity than soil with single vegetation of spruce. Activity of single vegetation of spruce was 4.270 $g^{-1}h^{-1}$ pnpμg and in mixed vegetation of spruce-alder was 8.107 $g^{-1}h^{-1}$ (Fig. 2).

Table 2: Soil with mixed vegetation has more activity than soil with single vegetation of spruce.

Significant level	Calumniated (T)	Confucian distance in 95% level		Free degree	Standard devotion	Mean	Group
		High level	Low level				
0.089	-2.232	93.711	-861.23	4	494.49	8.107	Mixed vegetation
						4.270	Single vegetation

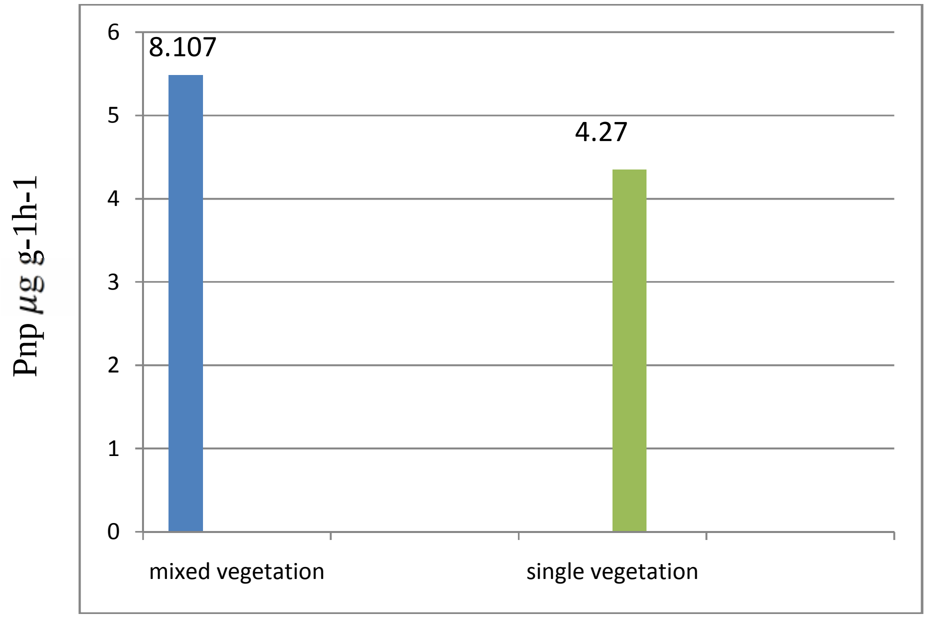

Fig. 2.

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