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Studying the Effects of Nitrogen and Phosphorus Fertilizers Castor Oil

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ABSTRACT

Castor bean plant (*Ricinus communis L.*) belonging to the Euphorbiaceae family is an important oilseed crop all over the world. It is widely cultivated throughout tropical and subtropical regions, such as Brazil, India, China, Thailand, Ethiopia, and Philippines. We concluded that species-specific responses to N and P and manure enrichment were significantly promoted net photosynthetic rate and growth factors and stem length, leaf area, number of capsules and number of seeds per capsule, number of clusters per plant, and amount of oil produced of castor.

Keywords: Ricinus Genus; N; P Enrichment; Castor Oil

Introduction

Castor (*Ricinas communis*) is a member of the Euphorbiaceae family. It is the only polytypic species of this family that is called castor in England. This plant is native to East Africa, but it is also widely distributed in other parts of the world, such as Iran, Afghanistan, the Soviet Union, Palestine, Southeast Asia, India, China, and the Arabian Peninsula above 2000 meters is not economical and cost-effective. Extreme cold seriously damages castor oil Bijani et al. [1]. And the growth period of castor oil should be free from cold, and castor oil is famous for its drought resistance and gives a good crop with relatively low rainfall. The role of seed organs and leaves in castor oil. soil fertilizer supply performance and fertilizer dosage to maintain nutrient balance between the proposed fertilizer dosage and ratio. Zhang et al. [2,3]. Today, the use of inorganic fertilizers, especially nitrogen fertilizers, in agriculture to increase crop yields and provide food for the growing human population has caused problems, the most important of which is environmental pollution. Most important country product castor oil. Since there is little information available about the response of castor oil plants to various types of animal and chemical fertilizers, this experiment will be conducted to investigate the effect of various fertilizer sources, including cattle and chemical fertilizers, on the physiological, agronomic, and morphological characteristics, as well as seed and oil yield of castor oil plants.

Materials and Methods

Control (without adding fertilizer) 2- Urea fertilizer 100 kg per hectare, 3- Phosphorus fertilizer 250 kg per hectare Ammonium phosphate 4- Livestock manure 30 tons per hectare is considered in each replication. The experiment was started in winter and its follow-up, irrigation and maintenance were carried out in summer and irrigation was done by spraying.

Results and Discussion

The project has several main objectives. The result show in Table 1 and Figure 1. concentrations in terms of dry matter in leaf laminae of P-sufficient plants decreased strongly with leaf age and tended to decrease from the first to the second harvest Andrews et al. [4-8]. The results suggested that alkali stress could cause much more damage to the castor bean seedlings, and different physiological responses and adaptive strategies are found in cotyledons and true leaves under salt-alkali stress. This study will help us develop a better

understanding of the adaptation mechanisms of cotyledon and true leaf during early seedling stage of castor bean plant, and also provide new insights into the function of cotyledon in Ricinus communis under salt-alkali stress conditions. We concluded that the low P availability decreased the gas-exchange parameters such as the net photosynthetic rate, transpiration rate, and stomatal conductance, and increased the intercellular CO2 concentration. Chlorophyll a fluorescence demonstrated that the leaves' absorption and trapped-energy flux were largely steady. In contrast, considerable gains in absorption and trapped-energy flux per reaction center resulted from decreases in the electron transport per reaction center under low-P conditions. In addition, low P availability reduced the activities of antioxidant enzyme.

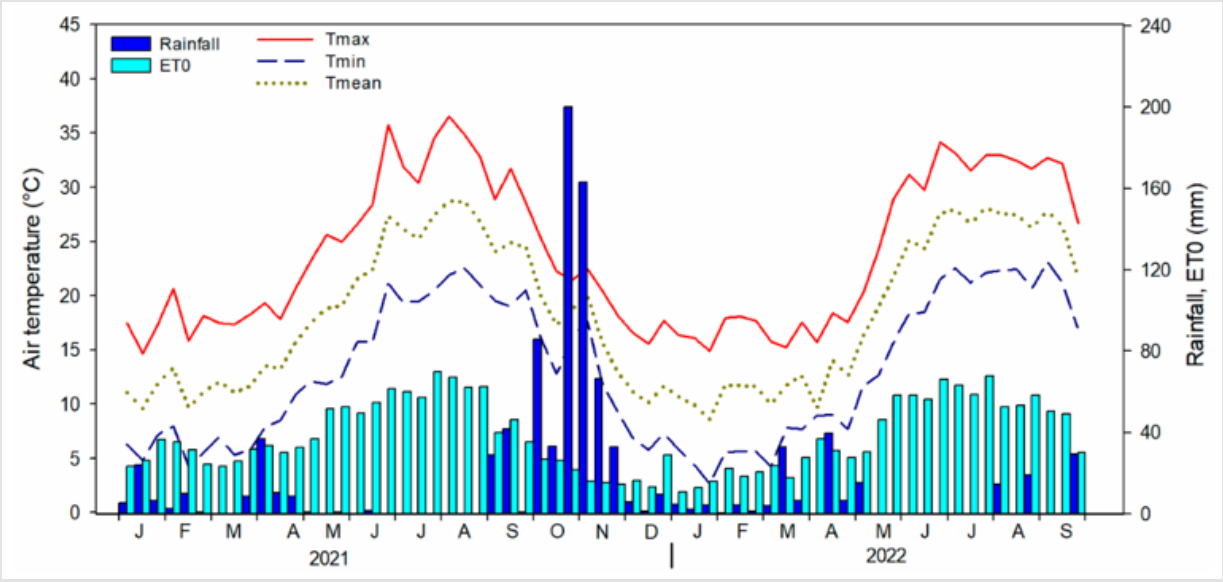

Figure 1: Castor oil growing in Semnan University greenhouse. Effects of Nitrogen Fertilization and Soil Water Content on Seed and Oil Yield.

Table 1: Analysis variance of the effects of N and P and nd manure on the growth of potato fresh weight leaves.

Source of Vatiation	DF	SS	Ms
Replication	2	2	0.04
treatment	3	66	12
errore			
Significant at 1% level			No significant at 5 % level

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