

## **EFFECT OF NITROGEN FERTILIZATION, HUMIC ACID AND COMPOST EXTRACT ON YIELD AND QUALITY OF RICE PLANTS**

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### **ABSTRACT**

Two field experiments were carried out at El- Gemmeiza Agricultural Research Station, El-Gharbia Governorate during the two summer growing seasons, 2007 and 2008 to study the effect of nitrogen fertilizer rates, i.e., 15, 30 and 45 kg N/fed and foliar application of compost extract & humic acid on yield components, yield and chemical composition of rice plants and nitrate as well as nitrite content in drainage water at different stages from transplanting.

**Results can be summarized as follows:-**

Generally, high level of nitrogen fertilizer achieved significantly increases of rice yield and its components as well as N, p & K content of grain and straw compared with low rates in both growing seasons. While, in most cases, the same trend was recorded when second level of 30kg N/fed was practiced.

Spraying humic acid or compost extract led to significant increases in most parameters of yield and its components as well as N, p & K content of grains and straw compared to no addition of such organic compounds in both seasons.

In most cases, the interaction effect between the factors under study was insignificant on rice yield and its components as well as macronutrients content of grains and straw in both seasons.

The high level of nitrogen fertilizer achieved significantly increases of nitrate and nitrite content in drainage water at different stages from transplanting compared to low rates in both stages of two growing seasons. On the other hand, such parameters weren't significant affected by foliar application of humic acid, compost extracts or the interaction between them and nitrogen levels in both seasons.

**Keywords:** Rice plant, compost extract, humic acid, nitrogen fertilizer level

### **INTRODUCTION**

Rice is one of the most important cereal crops in the world, both for local consumption and export. Recently, its productivity in Egypt has scored the highest level all over the world being about' 10 ton/ha. The growth of rice was found to be affected by nitrogen under Egyptian soil conditions. Fischer (1998) concluded that rice production must be increased by about 65% more than today to meet the demand projected for 2025. If the technologies that affect nutrient utilization by the rice crop remain unchanged, that production increase will require almost 300% more than the present application rate of N alone in irrigated environments. This is an undesirable amount economically and environmentally. The nutrient-use efficiency of rice cropping systems must be improved, along with yield potential of rice cultivars, in order to improve profitability of rice production and prevent environmental degradation in irrigated areas.

Nitrogen is one of the most yield-limiting nutrients in lowland rice production, and proper N management is essential for optimizing rice grain