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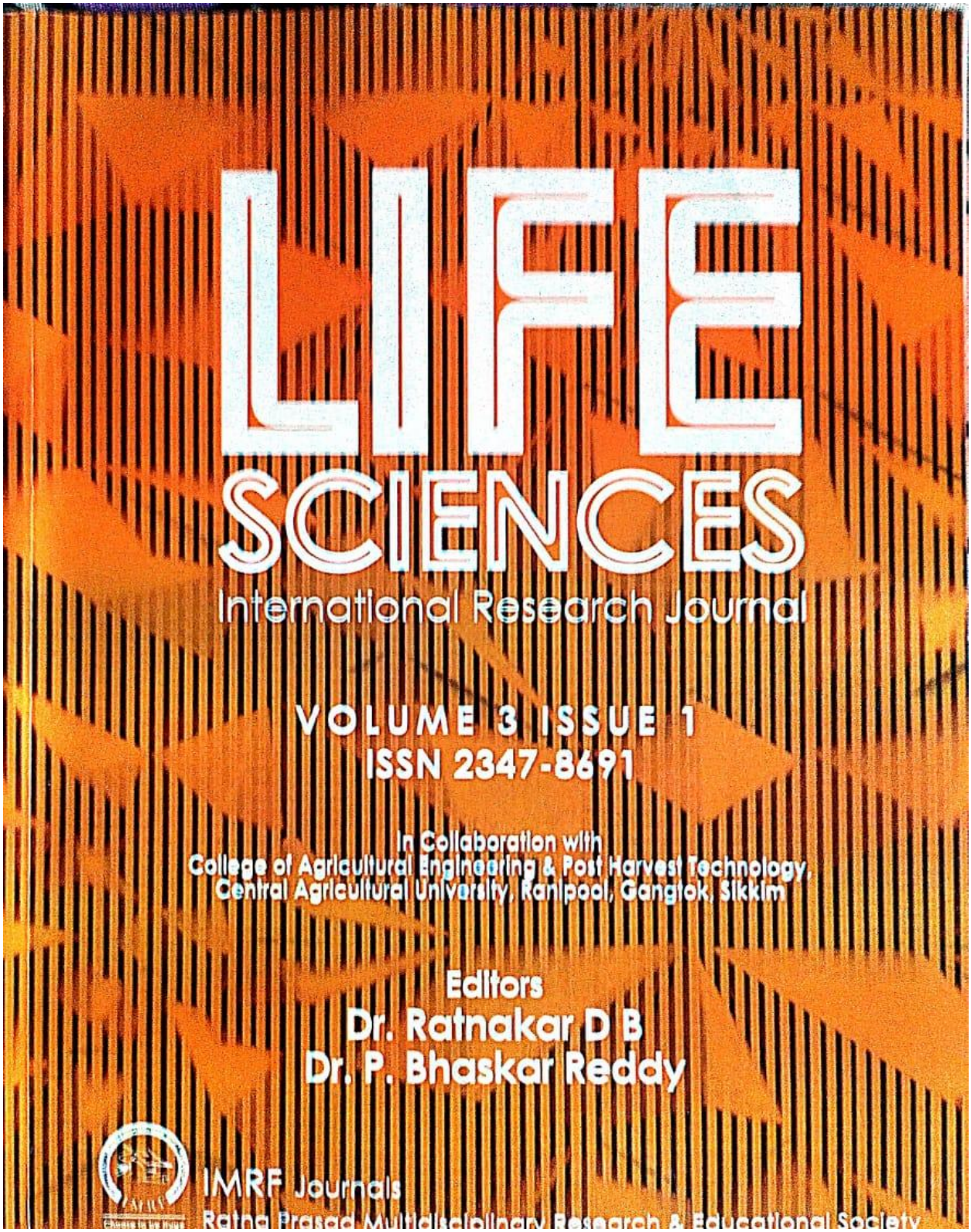
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EFFECT OF VARIOUS TYPES OF GULMOHAR COMPOST ON YIELD AND NUTRIENT UPTAKE OF MAIZE

B. P. SARWADE, H. B. WAGHIRE

Abstract: Gulmohar (*Delonix regia* Boj. ex Hook.) belongs to family fabaceae, remains green for ten months in a year and having faster regrowth without maintenance, grows well in tropical and subtropical climate. It is a legume, so gives high nitrogen content. It is planted as an ornamental plant. Beside this, the foliage also can be used for green manuring and preparation of other organic manures.

The aim of the present investigation was to find out the effect of gulmohar compost prepared by aerobic (NADEP) and anaerobic (Bangalore) pit methods on productivity of fodder maize (*Zea mays* L.). The field experiment was conducted in research farm of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. The experiment was conducted in plots of size 150 x 150 cm with six treatments and four replications. The composts were used as gulmohar vermicompost (GVC), gulmohar compost (GCO), green leaf manure (GLM) and dry leaf manure (DLM) with recommended fertilizer (N120:P80:K40) Kg/ha and absolute control. The fodder maize (*Zea mays* L.) var. 'African Tall' (Mahalaxmi) produced by Mahendra Hybrid Seeds Co. Ltd., Jalna was sown at a rate of 100 kg/ha. The physiological traits of the crop were noted at 78 days after sowing (DAS).

On the basis of statistical analysis it has been observed that all the values of fresh weight, dry matter, nitrogen, crude protein (Kg/ha) and reducing sugar (Kg/ha) were significant in all the treatments over CON. The percent increase over control for fresh weight and dry weight (Kg/ha) was found maximum with the fertilization of GLM. The nitrogen efficiency ratio for fresh vegetation was highest in the plots treated with DLM, while in case of dry matter (Kg/ha) was highest in the plots treated with GLM.

Green leaf manure and dry leaf manure prepared from gulmohar foliages are the best, active and cheapest source of plant nutrients working with high efficiency as compared to fertilizer treatment.

Key words: Gulmohar, Compost, Maize.

Introduction: Gulmohar (*Delonix regia* Boj. ex Hook.) belongs to family fabaceae, remains green for ten months in a year and having faster regrowth without maintenance, grows well in tropical and subtropical climate. It is a legume, so gives high nitrogen content. It is planted as an ornamental plant. Beside this, the foliage also can be used for green manuring and preparation of other organic manures.

Maize is almost an ideal forage crop. It is a quick growing high yielding, palatable and nutritious (Narayanan and Dabadghao, 1972; Relwani, 1979). In India, maize can be grown in wide range of climatic conditions. Different varieties of maize take from 60 to 90 days to harvest for fodder. The crop can be fed to cattle safely at any stage of growth. The yield of fresh fodder varies from 157 to 280 quintals per hectare (Narayanan and Dabadghao, 1972). The aim of the present investigation was to find out the effect of gulmohar compost prepared by aerobic (NADEP) and anaerobic (Bangalore) pit methods on productivity of fodder maize (*Zea mays* L.).

Materials and Methods:

Experimental site and design: The field experiment was conducted in research farm of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, during Oct. 2006 – Jan 2007. The experiment was conducted in plots of size 150 x 150 cm with six treatments and four replications. The composts were used as gulmohar vermicompost (GVC), gulmohar compost (GCO), green leaf manure (GLM) and dry leaf manure (DLM) with recommended fertilizer (N120:P80:K40) Kg/ha and absolute control. The fodder maize (*Zea mays* L.) var. 'African Tall' (Mahalaxmi) produced by Mahendra Hybrid Seeds Co. Ltd., Jalna was sown at a rate of 100 kg/ha. The physiological traits of the crop were noted at 78 days after sowing (DAS).

Collection, treatments and plot size: The fresh vegetation of Gulmohar (*Delonix regia* Boj. ex Hook.) was collected from the Dr. Babasaheb Ambedkar Marathwada University campus, brought to laboratory and chopped into small pieces (2 to 3 cm) by iron cutter. Equal amount (13333 kg ha^{-1}) of leaf vegetation was used for the preparation of gulmohar vermicompost (GVC), gulmohar compost (GCO), green leaf manure (GLM) and dry leaf manure (DLM). The fresh vegetation of Gulmohar was spread on the hygienic floor and subsequently sprayed with 5 % urea and single super phosphate (SSP) and another lot of fresh vegetation was also sprayed with 5 % dung slurry to enhance the composting process. These pretreated materials were arranged alternately along with well-composted inoculum and soil on each layer in the aerobic tanks and anaerobic pits. Sufficient water was sprinkled in order to maintain the optimal moisture (50 to 70) over the material. The pits were

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Effect of Leaf Litter Composts on Chlorophyll, Vitamins and Sugar Content in Beet Root

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Abstract -

The aim of the present investigation was to find out the effect of leaf litter compost prepared by aerobic (NADEP) and anaerobic (Bangalore) pit methods on vitamins and sugar content in beet root (*Beta vulgaris* L.). The field experiment was conducted in research farm of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, during December-February 2006. The experiment was conducted in plots of size 150 x 150 cm with six treatments and four replications. The composts were used as NADEP, Bangalore method (compost), vermicompost and Dung treatment separately in comparison with recommended fertilizer (N40:P30:K30 Kg/ha) and absolute control. The beet root was sown by the method of ridges and furrows at the seed rate of 10 Kg/ha. The Ascorbic acid, â- carotene content in beet root leaves was estimated at 70 DAS (days after sowing). The sample of beet root was kept in oven for drying, grinded to a fine powder and it was used for the estimation of reducing sugar.

The leaf litter composts increased the yield and nutrient content of beet root. Beet root are biennial plants grown as annuals and harvested for their swollen root tuber. The flesh with brown/purple skin, although yellow and white fleshed varieties are also available. While beet root is most commonly eaten as a cold, salad vegetable, pickled in vinegar and it also makes a delicious hot vegetable. Grated beet root may also be eaten raw. Beet root is utilized as a food as it is rich in nutrients like protein carbohydrates, vitamins and minerals etc.

In the present investigation the ascorbic acid in beet root leaves was statistically significant in the treatment of dung and vermicompost while remaining values of compost, NADEP and fertilizer treatments were statistically non significant. However, in case of â- carotene it has been observed that all the values of treatments were statistically significant. The maximum percent of reducing sugar was observed in the treatment of dung, followed by the treatment of compost. The treatment of NADEP and vermicompost shows similar values. The minimum percent of reducing sugar was observed in the treatment of fertilizer as compare to other treatments. Thus showing that use of composts positively increase the sugar content while chemical fertilizers reduce it.

Key words: - Compost, Beet root, Ascorbic acid, â-carotene, Reducing sugar.

Introduction

Leaf litter acts as a nutrient source and is of great importance in the fertility of the soils (Pandit *et al.*, 1989). The leaves of most trees contain twice as many minerals as manure. Since most of the trees are deep rooted, they absorb minerals from the soil and a good portion of these minerals goes into the leaves. The nutrient fluxes from the trees to soil via litter (Chauby *et al.*, 1988). In fact, these are most valuable for the huge amount of fibrous organic matter to the soil. Using this rich natural fertilizer means less reliance on mineral fertilizers and reduces the quantity of these nutrients which are major pollutants entering local waterways (Reshetiloff, 2005). The decomposition of organic residues plays a central role in supplying plant nutrients, both in managed and natural ecosystems. The decomposition of plant litter is one of the most important pathways for both energy and nutrient recycling in the ecosystem (Bray and Gorham, 1964). It is governed by the interplay of abiotic and substrate quality variables. Under the influence of the prevailing climatic environment, different litter species have their own specific rate of decomposition, which govern the rate at which nutrients are released from the litter. Litter acts as a nutrient source in upper soil horizons and soil tilth is improved making the soils suitable for cultivation.

Materials and Methods

Experimental site

Field experiment was conducted in the Research farm at Dr. Babasaheb Ambedkar Marathwada University during the period from 17 Dec. 2005 to 24 March 2006.

Collection, treatments and plot size

The freshly fallen dead leaves (leaf litter) were collected from the Dr. Babasaheb Ambedkar Marathwada University campus. Leaf litter was used for the preparation of compost (COMP), vermicompost (VCOM), NADEP pit (aerobic) and separately used dung treatment (DUNG). After 35 days, this leaf litter compost was transferred to the experimental area and incorporated into the top of soil (15 - 20 cm) by disking. These treatments were compared with 100 % fertilizers (FERT) alone and control (CONT). Beet root (*Beta vulgaris* L.) was cultivated @ 10 Kg ha-1 var. F1 Lalima produced and marketed by Golden seeds, 203-205 II floor, Bhavana Towers, Sarojini Devi Road, Secunderabad, Andhra Pradesh. Plot with the size of 150 x 150 cm2 used for the cultivation of beet root along with mineral fertilizers (N40:P30:K30 Kg ha-1).

Chemical analysis

The chemical analysis was done by adopting standard analytical methods. The chlorophyll contents (a, b and total) were estimated (Arnon, 1949), using 80 % acetone as a solvent for extraction of pigments. The dry samples were boiled in distilled water, filtered and amount of water soluble reducing sugars was determined in the filtrate by using Folin-wu tubes (Oser, 1979). Ascorbic acid was estimated by titration method given by Sadasivam and Manickam (1992).The amount of â-carotene (Pro- vitamin A) was estimated by extracting it in

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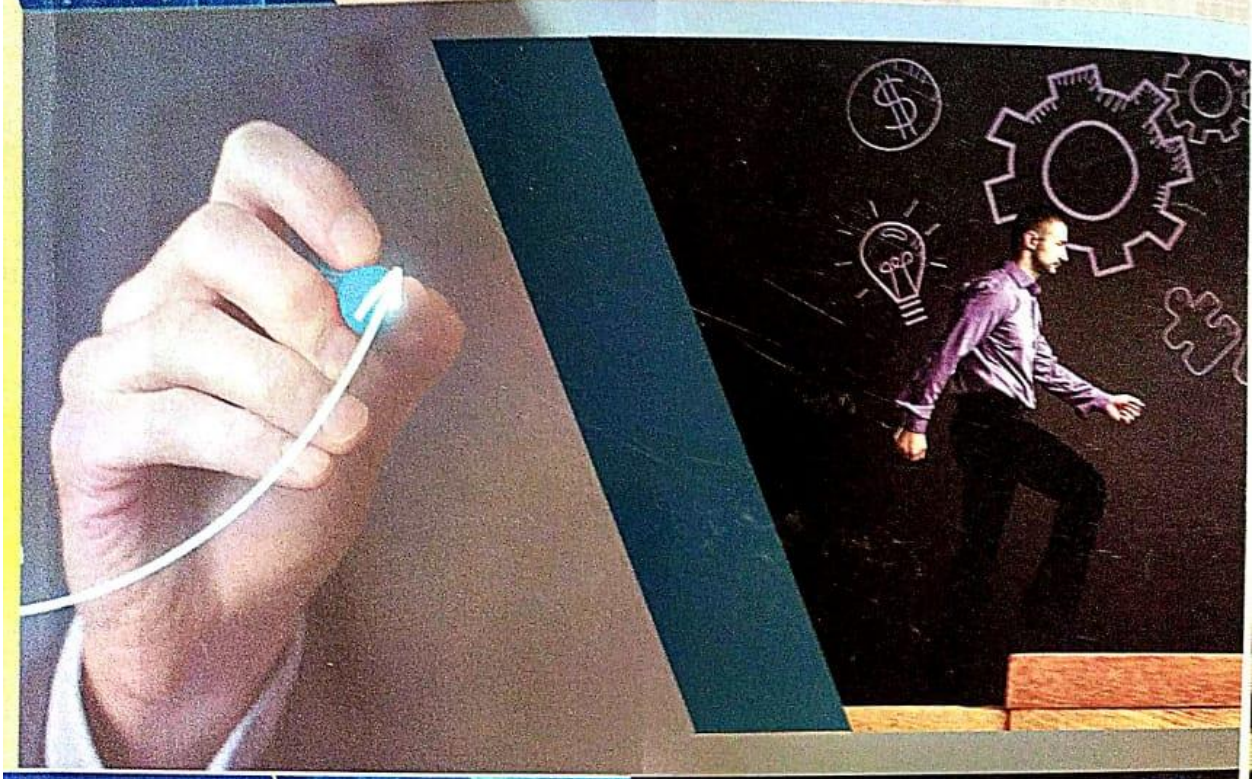

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16. Impact of Various Types of Gulmohar (Delonix Regia Boj. ex Hook.) Compost on Productivity of Fodder Maize

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Abstract

Gulmohar (Delonix regia Boj. ex Hook.) belongs to family fabaceae, remains green for ten months in a year and having faster regrowth without maintenance, grows well in tropical and subtropical climate. It is a legume, so gives high nitrogen content. It is planted as an ornamental plant. Beside this, the foliage also can be used for green manuring and preparation of other organic manures.

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10. Some Common Aquatic Plants of Dudhana Dam Jalna District, Marathwada, Maharashtra

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Abstract

The paper deals with the report on some of the more common aquatic plants of Beed district. The data like general vegetation pattern of the ponds, lakes, pH of water etc. have been presented together with the enumeration of 25 plants collected by Dudhana Dam district.

Key world: Aquatic plants, Beed district, Marathwada.

Introduction

This part of the Taluka Partur Dist. Jalna. Partur is birth place of bhakt pralhad the son of hiranya kashku located at 19.35°N 76.12°E.(District Website). It has an average elevation of 439 metres (1440 feet). Godavari is major river flows through various villages of Partur. Near Dudhana river Upper Dudhana Dam. Bageshvari Sugar Factory, Warfal in Partur.

The Lower Dudhna Major Irrigation Project is being constructed in the Godavari basin in Parbhani district of Maharashtra. The project comprises of the following components.

i. 6581.20 m long earth dam with the maximum height of 18.52 m and 438.80 m long masonry/concrete dam of the maximum height of 28.60 m having 65 m long left non-overflow blocks, 303.30 m long gated spillway and 70.50 m long right non-overflow blocks across river Dudhna near Brahma-Wakdi village in Selu Taluka of Parbhani district.

ii. Two head regulators for two canals constructed on left flank and right flank.

iii. 69 km long Left Bank Canal (LBC) and 48 km long Right Bank Canal (RBC) having head discharge of 8.50 m3/s and 6.90 m3/s respectively.