**Journal of Plant Development Sciences**

**(An International Monthly Refereed Research Journal)**

Volume 7 Number 5 May 2015

**Contents**

Traditional knowledge and use of indigenous tropical fruits by rural households in the Uttara Kannada district of Karnataka, India

—**Rajeshwari N. and Manjunatha G.O.** 373-379

Effect of different combinations of organic manures and biofertilizers on growth, yield, grain quality and economics in organic farming of scented rice

—**Hargilas and S.N. Sharma** 381-388

Succession of various insect pollinators/ visitors visiting on niger flowers (*Guizotia abyssinica* Cass.) in north zone of Chhattisgarh

—**G.P. Painkra, Shiv K. Shrivastava, S.S. Shaw and Rajeev Gupta** 389-392

Seasonal incidence of major insect pests of Okra and correlation with abiotic factors

—**Meena, N.B., Meena, A. K. and Naqvi, A.R.** 393-399

Present status and distribution pattern of sandal wood with its culture and heritage values across the globe

—**Girish Shahapurmath and Hanumatha M.**  401-407

Cultivation of edible Mushroom in India: precautions, opportunities and challenges

—**Vikas Kumar, Subha Chandra, M.P., Shancy, S.C., Sabnam, V.S. and Lamya T.V.**  409-413

Nutritional and biochemical importance of chickpea in respect to human health a review

—**Alka Katiyar and S.P. Mishra** 415-420

Residual, direct and cumulative effect of organic manures and biofertilizers on yield, nutrient uptake, grain quality and economics of wheat under organic farming of rice-wheat cropping system

—**Hargilas and S.N. Sharma**  421-428

Exploration of plant based traditional knowledge from sham region of Ladakh (J&K) India

—**Konchok Dorjey** 429-433

Role of fly ash on soil health and crop production

—**A.K. Singh, R.G. Goswami, Thaneshwar Kumar and Chandu Lal**  435-438

Documentation and ethnobotanical importance of medicinal plants found in Sarguja district

—**D.K. Yadav, M.K. Jhariya, Anil Kumar and R. Sinha**  439-446

Correlation of ph and organic carbon with available iron (Fe) in red and yellow soil (*Inseptisols*) of of Navagarh block in Janjgir –Champa district in Chhattisgarh

—**Harish Kumar Mahla, Kumar Dhar Sahu and Suraj Kumar Rai** 447-450

Bio-efficacy of some newer insecticides/bio-pesticides against major insect pests of Okra

—**N.B. Meena, A.K. Meena and A.R. Naqvi** 451-454

Utilization of fly ash in agriculture for improving soil properties and crop productivity

—**Thaneshwar Kumar, A.K. Singh, R.G. Goswami, Premlal Sahu and Chandi Lal** 455-459

Effect of foliar application of growth regulators on chlorophyll content in *Pisum sativum* L.

—**Namita Sharma, Suruchi Tyagi and Manju Nagar** 461-464

**REPORTED**

Common physiological disorder of tomato (*Solanum lycopersicum*)

—**Thalesh Kumar Panigrahi, Amit Nishant Kujur and Nutan Singh** 465-468

**SHORT COMMUNICATION**

Phytoplasma disease associated with *Croton bonplandianum* weed in Andhra Pradesh, India

—**D. Vijay Kumar Naik, R. Sarada Jayalaxmi Devi, B.V. Bhaskara Reddy, S.M. Shareef and A. Ranga Rani** 469-470

Safety of certain new insecticides to damsel fly population in rice ecosystem

—**Swati Sharma and Ashish Kumar Sharma** 471-472

Morphological characterization of garlic (*Allium sativum* L.) germplasm

—**Mukesh Kumar** 473-474

Evaluation of organic carbon status in soils of jaijaipur block in district janjgir-champa of chhattisgarh

—**Kumar Dhar Sahu, Sangeeta Joshi and Harish Kumar Mahla**  475-477

Journal of Plant Development Sciences Vol. 7(5)

**TRADITIONAL KNOWLEDGE AND USE OF INDIGENOUS TROPICAL FRUITS BY RURAL HOUSEHOLDS IN THE UTTARA KANNADA DISTRICT OF KARNATAKA, INDIA**

**Rajeshwari, N.\*1 and Manjunatha, G.O.2**

*1 Dept. of Natural Resources Management, College of Forestry Sirsi, UAS Dharwad, Karnataka*

*2 Dept. of Forest Products and Utilization, College of Forestry Sirsi, UAS Dharwad, Karnataka*

*Received-04.05.2015, Revised-14.05.2015*

**Abstract:** The Uttara Kannada forests are rich in biological diversity both with respect to flora and fauna. The rural households in this district possess traditional knowledge about the use of indigenous fruits which are season specific. To gather traditional knowledge on fruit and their use, A study was conducted on consumption of these fruits by the Farm households of different geographic zones across the Uttara Kannada district. An attempt was also made for documentation of recipes prepared indigenously by farm women of different regions. The results revealed that different fruit parts used in the reported recipes were unripe fruits and ripe fruit pulp, seed and fruit rind though the list is not exhaustive. Upghat region represented highest recipes (33) and coastal region was on par with the upghat region (31). Eastern plains recorded lowest number of recipes (5). Famous jackfruit dosa was reported from coastal region. The recipe for mango appe huli was not reported in eastern plains, it was however recorded from coastal and upghat region. The study concludes that coastal and upghat zones have more number of recipes compared to eastern plains, therefore these zones may called centers of traditional knowledge on indigenous fruit trees. We also suggest that further studies are required for socio-economic and cultural linkage analysis in this region.

**Keywords:** Uttara Kannada, Fruit trees, Recipes, Indigenous knowledge

Journal of Plant Development Sciences Vol. 7(5)

**EFFECT OF DIFFERENT COMBINATIONS OF ORGANIC MANURES AND BIOFERTILIZERS ON GROWTH, YIELD, GRAIN QUALITY AND ECONOMICS IN ORGANIC FARMING OF SCENTED RICE Hargilas\* and S.N. Sharma** *India Agricultural Research Institute, New Delhi*

*Email Id: hargilasm73@gmail.com Received-10.05.2015, Revised-22.05.2015*

**Abstract:** The field experiments carried out at the Indian Agricultural Research Institute, New Delhi during *Kharif* season of 2002 and 2003 to study the effects of different combinations of organic manures and biofertilizers on growth, yield, quality and economics of scented rice. The results indicated that application of farmyard manure (FYM) and Sesbania green manuring (SGM) significantly increased all the growth parameters and yield attributes of rice over absolute control which led to 17-27% and 26-33% increase in grain yield of rice, respectively. Combination of SGM + FYM was significantly superior to SGM and FYM alone and increase grain yield of rice by 44-53% over control. Inoculation of BGA with SGM and SGM + FYM resulted in a 4-11 and 3-8% increase in the grain yield over SGM and SGM + FYM, respectively. The highest grain yield of rice was obtained with the combinations of FYM + SGM + BGA this combination is, thus recommended for organic farming of rice.

**Keywords:** Organic farming, Farmyard manure, Sesbania green manuring, Blue green algae

Journal of Plant Development Sciences Vol. 7(5)

**SUCCESSION OF VARIOUS INSECT POLLINATORS/ VISITORS VISITING ON NIGER FLOWERS (*GUIZOTIA ABYSSINICA* CASS.) IN NORTH ZONE OF CHHATTISGARH G.P. Painkra\*, Shiv K. Shrivastava1, S.S. Shaw2 and Rajeev Gupta3** *\*RMD, college of Agriculture & Research station, Ambikapur, Distt- Surguja ( C. G.) India 497001 1,2 & 3 Department of Entomology , College of Agriculture, Raipur ( C.G.) India Received-11.05.2015, Revised-21.05.2015* **Abstract:** The succession of 15 insect pollinators/ visitors were recorded during 2012-13, amongst them *Apis cerana indica* appeared first on niger flower followed by *Apis florea*, *Danaus chrysippus*, *Pelopidas mathias*, *Musca domestica*, *Vespa cincta*, *Apis dorsata, Nezara virudula*, *Coccinella septumpunctata*, *Eristalis* sp*., Amata passelis, Chrysomya bezziana, Leptocorisa acuta, Dysdercus cingulatus* and *Sarcophaga* sp. They were found visiting on niger flower throughout the blooming period. **Keywords**: Succession, Insect pollinators, Visitors, Niger flowers

Journal of Plant Development Sciences Vol. 7(5)

**SEASONAL INCIDENCE OF MAJOR INSECT PESTS OF OKRA AND CORRELATION WITH ABIOTIC FACTORS**

**Meena\*, N.B., Meena, A. K. and Naqvi, A.R.**

*Department of Entomology, College of Agriculture (SK Rajasthan Agricultural University),*

*Bikaner-334006*

*Maharana Pratap University of Agriculture and Technology, Udaipur -313001 (Rajasthan)*

*Email: rajeshpatho@gmail.com*

*Received-09.05.2015, Revised-20.05.2015*

**Abstract** The field experiment was conducted at the Agronomy farm, College of Agriculture, (SKRAU), Bikaner, Rajasthan during summer, 2009 to study the seasonal incidence of major insect pests of okra and correlation with abiotic factors and revealed that the incidence of jassid started two weeks after germination of okra (third week of March), population increased rapidly and reached to its peak in the first week of April. The infestation of whitefly started in the third week of March and remained throughout the growth period. The infestation of shoot borer started in the fourth week of March and remained upto second week of May, being maximum in the first week of April. The infestation of shoot borer declined after fruit setting and completely disappeared thereafter. The infestation of fruit borer was recorded in the third week of April (seven weeks after germination) and remained upto last week of June with a maximum in the first week of May.Jassid, whitefly and fruit borer population was had not significant with maximum & minimum temperature, relative humidity and rainfall, while maximum and minimum temperatures had negative significant effect on the shoot borer infestation.

**Keywords:** Seasonal incidence, Abiotic factors, Jassid, Whitefly, Shoot, Fruit borer

Journal of Plant Development Sciences Vol. 7(5)

**PRESENT STATUS AND DISTRIBUTION PATTERN OF SANDAL WOOD WITH ITS CULTURE AND HERITAGE VALUES ACROSS THE GLOBE Girish Shahapurmath\* and Hanumatha M** *Department of Natural Resource Management, College of Forestry, UASD, Sirsi–581 401, Uttara Kannada District, Karnataka, India*

*\*Email: girishbshahapur@gmail.com Received-02.05.2015, Revised-13.05.2015*

**Abstract:** Sandal wood trees are medium sized hemiparasitic in nature falls under the same botanical family of European mistletoe with the notable members like Indian sandal wood (*Santalum album*) and Australian sandal wood (*Santalum spicatum*) which are found in India, Bangladesh, Srilanka, Australia, Indonesia, Hawai and other Pacific Islands. Indian sandalwood is a threatened species and indigenous to South India and grows in the Western Ghats and a few other mountain ranges like the Kalrayan and Shevaroy Hills (Tamil Nadu, India). Sandalwood from the Mysore region of Karnataka and Marayoor forest in Kerala, Southern India is of high quality. **Keywords**: Hemi-parasite, Mistletoe, Threatened species, Economic exploitation, *Padma*

Journal of Plant Development Sciences Vol. 7(5)

**CULTIVATION OF EDIBLE MUSHROOM IN INDIA: PRECAUTIONS, OPPORTUNITIES AND CHALLENGES**

**\*Vikas Kumar, 1Subha Chandra, M.P., 1Shancy, S.C., 1Sabnam, V.S. and 1Lamya, T.V.**

*\*Department of Silviculture and Agroforestry, College of Forestry, Vellanikkara*

*\*Kerala Agricultural University, KAU, Thrissur, Kerala 680656, India*

*1Dept. of Microbiology, Kerala Veterinary and Animal Sciences University, Thrissur, Kerala*

*Email: vkskumar49@gmail.com*

*Received-04.05.2015, Revised-14.05.2015*

**Abstract:** Mushroom cultivation has enormous potential to improve food security and income generation, which in turn can help boost rural and peri-urban economic growth regularly. These mushrooms grow on sawdust, wood, cereal straws or millet like wheat, bajra, jowar and rye mixed with calcium source (chalk-powder and gypsum). The substrates for cultivation of these mushrooms were steam pasteurized/sterilized, and no chemicals/pesticides were used during the cultivation of these mushrooms. Almost all the specialty mushrooms are lignicolous mushrooms, meaning lignin loving. The medium is sterilized after in heat resistant glass bottles or polypropylene bags at 121°C and 15 lbps pressure or for 2 hours at 100°C and inoculated with pure primary culture of *Agaricus bisporus*. The medium is incubated at 25°C and soon gets impregnated with mushroom mycelium. Sphagnum peat moss is the most commonly used material for casing. Harvestable mushrooms appear 18 to 21 days after casing.

**Keywords:** Cultivation, Mushroom, Food

Journal of Plant Development Sciences Vol. 7(5)

**NUTRITIONAL AND BIOCHEMICAL IMPORTANCE OF CHICKPEA IN RESPECT TO HUMAN HEALTH A REVIEW Alka Katiyar\* and S.P. Mishra** *Deptt. of Crop Sciences, M.G.C.G.V Chitrakoot*

*Email: alkaphdbiochem@gmail.com Received-08.05.2015, Revised-17.05.2015* **Abstract:** Pulses are an important source of dietary protein, energy, minerals and vitamins for the mankind. Chickpea is a good source of carbohydrates and protein, together constituting about 80% of the total dry seed mass in comparison to other pulses. They are a good source of many nutritionally important substances, especially the high-quality proteins with typically high content of lysine and a lower content of sulphur containing amino acids. Hence, it is appropriate legumes with cereals to balance the resulting amino acid composition of the food. The content of total dietary fiber in dry matter reaches about 30% and the resistant starch in legumes also behaves like a fiber. Chickpea is being consumed by humans since ancient times owing to its good nutritional properties. Furthermore, chickpea is fulfilling the need as functional food with potential beneficial effects on human health. **Keywords:** Chickpea, Human health, Legumes nutritional significance

Journal of Plant Development Sciences Vol. 7(5)

**RESIDUAL, DIRECT AND CUMULATIVE EFFECT OF ORGANIC MANURES AND BIOFERTILIZERS ON YIELD, NUTRIENT UPTAKE, GRAIN QUALITY AND ECONOMICS OF WHEAT UNDER ORGANIC FARMING OF RICE-WHEAT CROPPING SYSTEM**

**Hargilas\* and S.N. Sharma**

*India Agricultural Research Institute, New Delhi*

*Email: hargilasm73@gmail.com.*

*Received-08.05.2015, Revised-19.05.2015*

**Abstract:** The field experiments carried out at the Indian Agricultural Research Institute, New Delhi during *Rabi* season of 2002-2003 and 2003-2004 to study the effect of different combination of organic manures and biofertilizers on growth, yield,nutrient uptake and economics of wheat under organic farming. The results indicated that the cumulative effects of farmyard manure (FYM) and green manuring (GM) were more effective than its direct and residual effects and GM was significantly effective to FYM for increasing the productivity, nutrient uptake and economics of wheat. The inoculation of biofertilizers (B) with GM was better than GM alone in its cumulative effect. The combination of GM+FYM was still better than GM or FYM alone in its direct and cumulative effects for increasing productivity and gross return but net return was significantly reduced due to the higher cost of GM+FYM compared to FYM and GM alone. However, the residual effect of GM+FYM was similar to the cumulative effect of GM or FYM alone. The maximum improves the productivity and nutrient uptake was recorded with the use of GM+FYM+Biofertilizers. However, net return was significantly reduced due to higher cost of sources in combination of GM+FYM+B. It was concluded that the cumulative effect of GM+FYM+B for higher productivity and the cumulative effect of GM+B for higher net return were suitable for wheat in organic farming of rice-wheat cropping system.

**Keywords:** Organic farming, Wheat, Green manuring, Yield, NPK uptake, Economics

Journal of Plant Development Sciences Vol. 7(5)

**EXPLORATION OF PLANT BASED TRADITIONAL KNOWLEDGE FROM SHAM REGION OF LADAKH (J&K), INDIA**

**Konchok Dorjey\***

*Department of Botany, University of Jammu, Jammu (J&K), India-180006*

*Email: dorjeyusa@gmial.com*

*Received-13.05.2015, Revised-22.05.2015*

**Abstract:** Ethnobotanical forays were conducted in three villages viz. Wanla, Domkhar and Skurbuchan of Sham region in Ladakh (J&K). The present paper documents significant ethnobotanical information on traditional usage of some interesting high altitude plants by the indigenous villagers in Sham region of Ladakh as food, beverage, medicine, fodder, timber and fuel. Acquaintances on twenty plants including their botanical names, vernaculars and traditional usage and recipes were incorporated in the present paper.

**Keywords:** Ethnobotany, Traditional knowledge, Villages

Journal of Plant Development Sciences Vol. 7(5)

**ROLE OF FLY ASH ON SOIL HEALTH AND CROP PRODUCTION**

**A.K. Singh\*, R.G. Goswami1, Thaneshwar Kumar1 and Chandu Lal2**

*Department of soil science and Agriculture chemistry1*

*Department of Agronomy2*

*College of Agriculture, Raipur-4092012, Chhattisgarh*

*Email: ashish.ashish.singh240@gmail.com*

*Received-13.04.2015, Revised-01.05.2015*

**Abstract:** Fly ash is a residue of burning of coal and lignite, the organic sources of energy. The micro and macro nutrients present in coal get generally concentrated in the ash. However, several studies proposed that fly Ash can be used to improve physical, chemical and biological properties of the degraded soils and is a source of easily available and cheaper nutrients for crops. Fly ash can be used for reclaiming the problem soil and enhance the crop productivity depend upon the nature of soil and fly ash. Characterization of fly ash has widely shown about its usefulness in improving soil properties and crop growth, as its disposal needs large area of land. The use of fly ash in agriculture indicates that main constituents of fly ash are silicates of iron and aluminum. It contains fairly high available major nutrients like P, K and S and micronutrients such as In, Cu, Fe, Mn and B with high bio-available heavy metals. Depending up on its source of availability. it may be acidic or alkaline in reaction and therefore, it can be used as ameliorant to reclaim acidic and aJka1i soils. Hence an attempt has been made to summarize the work done in recent past on the use of fly ash in crop production in this review article.

**Keywords**: Fly ash, Soil texture, Soil structure, Soil aggregation, Nutrient availability, Soil physical environment

Journal of Plant Development Sciences Vol. 7(5)

**DOCUMENTATION AND ETHNOBOTANICAL IMPORTANCE OF MEDICINAL PLANTS FOUND IN SARGUJA DISTRICT**

**D.K. Yadav, M.K. Jhariya\*, Anil Kumar and R. Sinha**

*Department of Farm Forestry, Sarguja University, Ambikapur-497001 (C.G.), INDIA*

*Email: manu9589@gmail.com*

*Received-16.03.2015, Revised-29.03.2015*

**Abstract:** Chhattisgarh known as the “Herbal state” in India is a rich center of biodiversity. Among the diversity of species, medicinal plants diversity is of great importance. Medicinal plants provide livelihood support as well as medicine to nearly 80% of forest dwelling communities in Chhattisgarh. Protection and conservation of rare, endangered and threatened medicinal plants is a serious concern. Despite accessibility to modern allopathic medicines for treatment of various diseases, tribals in Chhattisgarh still depend on medicinal plants and the village's 'Medicine Man' to treat themselves for various ailments. However, with younger generations opting for work outside, this 'Art' is facing a threat of extinction. Sarguja district of Chhattisgarh has rich resource of medicinal plants, which is dominated by the tribal people. Generally, the sources of income in this region besides the agriculture are forest products including the medicinal plants. Therefore, it is prime aspect of conservation of these biological resources for sustainable use.

**Keyword:** Medicinal plant, Ethnobotany, Biological resources, Sustainable use

Journal of Plant Development Sciences Vol. 7(5)

**CORRELATION OF PH AND ORGANIC CARBON WITH AVAILABLE IRON (FE) IN RED AND YELLOW SOIL (*INSEPTISOLS*) OF NAVAGARH BLOCK IN JANJGIR –CHAMPA DISTRICT IN CHHATTISGARH**

**Harish Kumar Mahla\*, Kumar Dhar Sahu and Suraj Kumar Rai**

*Department of Soil Science and Agricultural Chemistry, IGKV, RAIPUR (C.G.) INDIA*

*Email: mahlahk@Gmail.com*

*Received-10.05.2015, Revised-19.05.2015*

**Abstract:** A Study was undertaken to evaluate the fertility status of Navagarh block, Janjgir- Champa district, Chhattisgarh, covering 112 villages of Navagarh block and 78 villages under soil fertility on the basis of correlation between status of OC, pH and available Fe in red and yellow soil. The statistical description of soil characteristics indicated that the pH of the soils varied from 4.5 to 7.2 (mean- 5.73). The variation in organic carbon in these soils from 0.25 to 0.85 percent (mean-0.53%). It was observed that soil had low to medium in organic matter status. The DTPA-extractable available Fe content were ranged from 3.24 to 51.42 mg kg-1 (mean- 26.52 mg kg-1) respectively in soil of Navagarh block. The present study revealed that there is wide variation in soil fertility status in soils of Navagarh block, but by and large, the soils were moderately acidic to neutral in reaction, low to medium in organic carbon, available iron content showed high status. The correlation studies between available micronutrient Fe and soil properties (pH ,OC) showed significant negative correlation with pH but significant positive correlation with OC.

**Keywords:** Correlation, Organic carbon, pH, Fe

Journal of Plant Development Sciences Vol. 7(5)

**BIO-EFFICACY OF SOME NEWER INSECTICIDES/BIO-PESTICIDES AGAINST MAJOR INSECT PESTS OF OKRA**

**N.B. Meena, A.K. Meena\* and A.R. Naqvi**

*Department of Entomology, College of Agriculture*

*(SK Rajasthan Agricultural University), Bikaner-334006*

*\* Maharana Pratap University of Agriculture and Technology, Udaipur -313001 (Rajasthan)*

*\*Email: rajeshpatho@gmail.com*

*Received-11.05.2015, Revised-20.05.2015*

**Abstract:** The bio-efficacy of eight insecticides *viz.,* imidacloprid 17.8 SL @ 0.005%, deltaphos 36 EC @ 0.036%, thiamethoxam 25 WG @ 0.005%, spinosad 45 SL @ 0.0068%, profenofos 50 EC @ 0.05%, azadirachitin 0.03 EC @ 5 ml/lit., NSKE @ 5.0%, *Bacillus thuringiensis* 8 L @ 0.012% evaluated against jassid, whitefly and shoot and fruit borer in okra at 15 days intervals and revealed that imidacloprid (0.005%) was found most effective against all the three pests followed by thiamethoxam (0.005%), deltaphos (0.036%) and spinosad (0.0068%). *B. thuringiensis* (0.012%) proved least effective followed by azadirachtin (5 ml/lit) and NSKE (5.0%). The treatments of profenofos (0.05%) ranked in middle order of their efficacy. All the insecticides increased the yield of marketable fruits significantly over control. The maximum yield (76.76 q/ha) was recorded in imidacloprid followed by spinosad (74.07 q/ha) and deltaphos (71.46 q/ha). The minimum yield was recorded in *B. thuringiensis* (44.10 q/ha) followed by azadirachtin (50.85 q/ha) and NSKE (55.02 q/ha).

**Keywords:** Bio-efficacy, Insecticides, Bio-pesticides, Jassid, Whitefly, Shoot, Fruit borer

Journal of Plant Development Sciences Vol. 7(5)

**UTILIZATION OF FLY ASH IN AGRICULTURE FOR IMPROVING SOIL PROPERTIES AND CROP PRODUCTIVITY Thaneshwar Kumar\*1, A.K. Singh1, R.G. Goswami1 Premlal Sahu2 and Chandi Lal2** *1Department of Soil Sciences & Agricultural Chemistry, Indira Gandhi Krishi Vishwavidyalaya, Raipur - 492012 (C.G) 2Department of Agronomy, Indira Gandhi Krishi Vishwavidyalaya, Raipur - 492012 (C.G.) Email: thaneshward15@gmail.com Received-15.05.2015, Revised-23.05.2015* **Abstract:** Fly ash constitutes the major portion of the total quantity of residues produced in coal fired thermal power plant. The large amount of fly ash that is generated each year calls for a great deal of research to determine its feasibility or various potential uses. Disposal of high amount of fly-ash from thermal power plants absorbs huge amount of water, energy and land area by ash ponds. In order to meet the growing energy demand, various environmental, economic and social problems associated with the disposal of fly-ash would continue to increase. Therefore, fly-ash management would remain a great concern of the century. Fly-ash has great potentiality in agriculture due to its efficacy in modification of soil health and crop performance. While compare to soil, fly-ash consists all the elements except organic carbon and nitrogen. The high concentration of elements (K, Na, Zn, Ca, Mg and Fe) in fly-ash increases the yield of many agricultural crops. But compared to other sectors, the use of fly-ash in agriculture is limited. Flyash addition to soil in different doses improves various physical and chemical properties of soil or improves soil quality and thereby is also beneficial for plant growth. Hence through the present review we can conclude that though fly ash is a waste of concern but now has become a boon for sustainable agriculture. **Keywords:** Fly-ash, Agriculture, Soil health, Crop yield

Journal of Plant Development Sciences Vol. 7(5)

**EFFECT OF FOLIAR APPLICATION OF GROWTH REGULATORS ON CHLOROPHYLL CONTENT IN *PISUM SATIVUM* L.**

**Namita Sharma\*, Suruchi Tyagi and Manju Nagar**

*Department of Botany, M.M.H. College, Ghaziabad*

*Received-08.05.2015, Revised-22.05.2015*

**Abstract:** A field experiment was conducted to study the effect of foliar spray of growth regulators on chlorophyll content of *Pisum sativum* L. The treatments of IAA (Indole acetic acid) and IBA (Indole butyric acid) in combination were used at different concentrations viz. 25ppm, 50ppm and 100ppm with control. It was observed that chlorophyll content inhibited at all treatments during early stage of crop growth. Combinations of Indoles of high concentration (IAA+ IBA 100ppm) increase the chlorophyll content while their low concentration IAA + IBA (25ppm) decrease the effect of chlorophyll content at 90 days stage of crop growth as compared to control. The chl. ‘a’, chl. ‘b’and protochlorophyll become highest in (IAA + IBA 100ppm) T4 at 90 days stage of crop growth.

**Keywords:** *Pisum sativum*, Growth regulators, IAA, IBA, Chlorophyll content

Journal of Plant Development Sciences Vol. 7(5)

**COMMON PHYSIOLOGICAL DISORDER OF TOMATO (*SOLANUM LYCOPERSICUM*)**

**Thalesh Kumar Panigrahi\*, Amit Nishant Kujur1 and Nutan Singh2**

*Department of Horticulture, IGKV, Raipur- 492012*

*Department of Floriculture and Landscape Architecture, IGKV, Raipur-492012*

*Department of plant Physiology Agricultural Biochemistry, Medicinal and*

*Aromatic plant IGKV, Raipur-492012*

*Email - panithalesh@gmail.com*

*Received-08.05.2015, Revised-15.05.2015*

**Abstract:** Tomato is the one of the important crop and which are grown through out the year and in India climate condition is change which is affect the plant growth and development. Physiological disorders are abnormalities in fruit color, shape, texture or appearance which are abiotic and biotic in origin which are not caused by infectious diseases or insects. Sometime after abnormalities in plant permit to enter of microorganism. Physiological disorders are distinguished from deficiencies of a nutrient, and physical, chemical or herbicide injury. Causes of physiological disorders include genetic factor, environmental factors, watering practices, nutrition, soil factors and cultural practices such as pruning and training. For most physiological disorders, involved many factors, and there is almost always a genetic component. Major physiological disorders of tomato include blossom end rot (BER), catface, cracking, irregular ripening, puffiness, sun scald, gold fleck, unfruitfulness.

**Keyward:** Tomato crops, Physiological disorder, Adverse climate, Genetic factor

Journal of Plant Development Sciences Vol. 7(5)

**PHYTOPLASMA DISEASE ASSOCIATED WITH *CROTON BONPLANDIANUM* WEED IN ANDHRA PRADESH, INDIA**

**D. Vijay Kumar Naik 1\*, R. Sarada Jayalaxmi Devi2, B.V. Bhaskara Reddy 3, S.M. Shareef 3 and A. Ranga Rani 2**

*1 Department of Plant Pathology, Agricultural College, Mahanandi-518502, Andhra Pradesh, India;*

*2 Department of Plant Pathology, Agricultural College, Tirupati-517501, Andhra Pradesh, India;*

*3 Department of Plant Pathology, Regional Agricultural Research Station, Tirupati- 517501, Andhra Pradesh, India;*

*Email d.v.naik07@gmail.com*

*Received-02.05.2015, Revised-14.05.2015*

**Abstract:** Phytoplasma was detected in *Croton bonplandianum* weed by direct and nested PCR using universal primers P1/P7 and R16F2n/R16R2 specific to 16SrRNA gene of phytoplasma. Running of 1% agarose gel electrophoresis for confirmation of phytoplasma associated with this weed.

**Keywords**: *Croton bonplandianum,* Nested PCR, 1% AGE, Phytoplasma specific primers

Journal of Plant Development Sciences Vol. 7(5)

**SAFETY OF CERTAIN NEW INSECTICIDES TO DAMSEL FLY POPULATION IN RICE ECOSYSTEM**

**Swati Sharma\* and Ashish Kumar Sharma**

*Department of Entomology, IGKV, Raipur (C.G.)*

*Received-30.03.2015, Revised-14.04.2015*

**Abstract:** Damselfly is a dominant predator in rice fields. Indiscriminate use of insecticides leads to environmental pollution, annihilation of natural enemies rendering to secondary pest resurgence. To find out the influence of certain new insecticides Alika 247 ZC@33g.a.i./ha is safer for Damselfly and application of Furadan 3G@1000 g.a.i/ha, Dursban 10G@1250 g.a.i./ha and Phorate 10G@100 g.a.i/ha were found harmful to damselfly.

**Keywords**: Damselfly, Newer insecticides, Ecosystem, Rice

Journal of Plant Development Sciences Vol. 7(5)

**MORPHOLOGICAL CHARACTERIZATION OF GARLIC (*ALLIUM SATIVUM* L.) GERMPLASM**

**Mukesh Kumar\***

*Department of Horticulture, SVPUAT, Meerut, UP, India 250110*

*Received-15.05.2015, Revised-23.05.2015*

**Abstract:** An experiment was conducted with 15 garlic cultivars at Horticultural Research Centre, SVPUAT, Meerut, UP, India during the year 2013-14. Results on different characteristics showed that cultivar Roshni Mota gave the maximum plant height and number of leaves per plant while cultivar CL Lamba exhibited maximum leaf length and leaf width. Maximum bulb weight was found in cultivar Chennia and cultivar Bhima gave maximum diameter of bulb. However, cultivar Roshni Mota gave maximum single clove weight and maximum number of cloves was found in cultivar BG 108.

**Keywords:** Garlic, Evaluation, Genotypes, Performance, Morphological Characterization

Journal of Plant Development Sciences Vol. 7(5)

**EVALUATION OF ORGANIC CARBON STATUS IN SOILS OF JAIJAIPUR BLOCK IN DISTRICT JANJGIR-CHAMPA OF CHHATTISGARH**

**Kumar Dhar Sahu\*, Sangeeta Joshi and Harish Kumar Mahla**

*Department of Soil Science and Agricultural Chemistry, Indira Gandhi Krishi*

*Vishwavidyalaya, Raipur, Chhattisgarh, 492012*

*Email: kumardsahu111@gmail.com*

*Received-11.05.2015, Revised-20.05.2015*

**Abstract:** A Study was undertaken to evaluate the fertility status of Jaijaipur block in Janjgir- Champa district, Chhattisgarh covering 105 villages during 2011-2012. The systematic collection of samples in geo–referenced surface (0-0.15m) soils samples from 2485 sites representing *Inceptisols, Alfisols* and *Vertisols* using Global Positioning System. The statistical description of soil characteristics indicated that the The organic carbon content in these soils varied from 0.22 to 0.75% (mean-0.46%), which was observed to be low to medium in organic CARBON status. The present study revealed that there is wide variation in soil low to medium in organic carbon.

**Keywords:** Soil, Organic carbon, Villages