

Journal of Plant Development Sciences

(An International Monthly Peer Reviewed Journal)

Volume 13

Number 9

September 2021

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A REVIEW ON WITHANIA COAGULANS (PANEER DODA) - AN IMPORTANT MEDICINAL PLANT

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Received-01.09.2021, Revised-19.09.2021, Accepted-28.09.2021

Abstract: *Withania coagulans* Dunal is commonly known as “paneer doda” ‘Indian cheese maker’ or ‘vegetable rennet’ because of fruits and leaves are used as a coagulant. The milk coagulating property of the fruits is attributed to the pulp and husk berries which contain an enzyme called Withanin, having milk-coagulating activity.

Keywords: Medicinal plant, *Withania coagulan*

CHARACTERIZATION OF DRAGON FRUIT DECCAN PINK VARIETY DEVELOPED BY A FARMER PRODUCING ORGANIZATION IN TELANGANA, INDIA

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Received-03.09.2021, Revised-14.09.2021, Accepted-23.09.2021

Abstract: Dragon fruit is emerging as an excellent crop, even for degraded land owing to its ease of cultivation and several health and medicinal benefits in the Indian sub-continent. Deccan Exotics F.P.O is a farmers’ producing organisation started in 2016 for the exclusive cultivation of dragon fruit in Telangana, India. It is making earnest efforts to conserve dragon fruit varieties in the field gene bank and to help farming community in this region. It has developed Deccan Pink clone which has been characterized using standard descriptors. Some of the traits exhibited by the elite clone are Stem characters (young stem reddish colour – Absent or weak; length of segment (131 cm); width (4.7 cm) waxiness (smooth); distance between areoles (5.5 cm); arch height (1.2 cm); margin of rib (concave)], Areola (number of spines-5); Flower bud shape, apex shape, colour, length and width, perianth length are also described. Fruit traits recorded are [length (11.8 cm); width(9.96cm); ratio (3); number of bracts (41.2); length of apical bracts (5.3cm); colour of middle bracts (pink); position of bracts (strongly held out); peel colour (medium pink); colour of flesh (dark pink); fruit weight (526 g). Highest yield recorded from 3-year-old orchard was 12,630 Kg per acre (June-October, 2020). Biochemical traits of fruit are also characterized [carbohydrates (12.3g/100g); TSS (16); antioxidant activity (310.8 µg/100g) phytates (43.13 mg); ascorbic acid (39.5 µg/100g); protein (5.5%). It has got potential to grow in diversified agro-climatic regions of India, thus ensuring food security and increased income to farming community.

Keywords: Dragon fruit, *Hylocereus spp.*, Characterization

COMPARATIVE EFFECTIVENESS OF TINOSPORA CORDIFOLIA LEAVES AND STEMS AGAINST THREE DIFFERENT BACTERIAL STRAINS

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Received-04.09.2021, Revised-16.09.2021, Accepted-26.09.2021

Abstract: Antibiotic resistance is prevalent in today's world, with harmful bacteria becoming resistant to a broad range of antibacterial agents. As a result, there is an urgent need in today's society to discover a natural antibiotic. In herbal medicine, plant species with medicinal value are used to treat a variety of illnesses that are caused by microbial infections. Using the stem and leaves of *Tinospora cordifolia*, the researchers in this study evaluated the antibacterial activity of the two plant parts in terms of stem and leaves. Three bacterial strains were acquired in lyophilized form from the Microbial type culture collection centre in Chandigarh, India, and were revived using Nutrient agar. Ethanol was used to extract bioactive chemicals from the plant species. The extracts of both plant sections had antibacterial activity against all of the bacterial strains tested, although there was a significant variation in their antibacterial effectiveness between the two plant parts.

Keywords: Antibacterial, Ethanol, Resistance, *Tinospora cordifolia*

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SCREENING OF DIFFERENT RICE ENTRIES AGAINST SHEATH BLIGHT DISEASE RESISTANCE

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Received-26.08.2021, Revised-10.09.2021, Accepted-20.09.2021

Abstract: The twenty-four rice entries were screened against sheath blight resistant in rice in the kharif 2016 and 2017. Among the tested rice entries, the entry IET No. R-2302-387-1-277-1, IET No. R-2302-390-2-288-1, IET No. R-2302-396-3-301-1 and IET No. -SUVT-324, recorded as a resistant reaction to sheath blight of rice, while IET No. VL-31289, IET No. Nidhi, IET No. RP-Patho-4, IET No. -RP-Patho-6, IET No. UPL R1-7, IET No. R-1675-1844-2-1257-1, IET No. R-2302-386-1-275-1, IET No. -R-1909-112-1-86-1, IET No. R-2034-147-1-186-1, IET No. Jaldoobi, IET No. R-RGY-SI-13, IET No. -R-1670-3975-1-485-1, IET No. -SUVT-122, IET No. -SUVT-230, IET No. -SUVT-353, IET No. -SUVT-362, IET No. -SUVT-412, IET No. Badshah Bhog-2 and IET No. Sarai Phool showed the moderately resistant response as compared to the susceptible check variety swarna.

Keywords: Screening, Rice entries, Sheath blight

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EFFECTIVENESS OF SOME INSECTICIDE MOLECULES AGAINST ONION THRIPS

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Received-07.09.2021, Revised-18.09.2021, Accepted-27.09.2021

Abstract: The experiment was conducted at Horticultural Research Farm, College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G) during Rabi season 2020-2021 to study efficacy of different insecticides against thrips on onion crop revealed Lambda Cyhalothrin 5% + Fipronil12.5%ZC @ 400 ml ha⁻¹ as most effective treatment followed by Lambda Cyhalothrin 5% + Fipronil12.5%ZC @ 300 ml ha⁻¹ Whereas Lambda Cyhalothrin 5% EC @ 300 ml ha⁻¹ was least

effective as it recorded highest thrips population per plant. The highest bulb yield were registered by Lambda cyhalothrin + fipronil 5% ZC @ 400 ml (11.19 t/ha) and the maximum benefit cost ratio (1: 8.07) was recorded with same insecticide.

Keywords: Bio efficacy, *Thrips tabaci*, Insecticides, Management, Onion

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ASSESSING THE CLIMATE SUITABLE REGIONS FOR CULTIVATION OF DRAGON FRUIT (*HYLOCEREUS UNDATUS*) IN INDIA

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Received-03.09.2021, Revised-13.09.2021, Accepted-25.09.2021

Abstract: Dragon fruit (*Hylocereus undatus*) is a promising exotic horticultural crop in India. It is grown in tropical and subtropical regions around the globe in South East Asia, Africa, Central and South America. Ecological niche modelling studies using the maximum entropy approach has been used to assess the suitable dragon fruit growing regions in India. Dataset for dragon fruit presence locations (91) was obtained from various sources. WorldClim dataset representing current and future climate was downloaded from <http://www.worldclim.org>. Dragon fruit presence locations dataset and WorldClim dataset were used with Maximum entropy (MaxEnt) modelling to generate the climate suitability map to show potential cultivation sites in India. The generated maps indicated that potential regions for cultivation of dragon fruit exists in several states of India viz., Andhra Pradesh, Arunachal Pradesh, Assam, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, West Bengal. The potential island regions identified are Andaman and Nicobar Islands.

Keywords: Dragon fruit, *Hylocereus undatus*, Ecological Niche Modelling, DIVA-GIS

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PERFORMANCE OF BARLEY AS INFLUENCED BY IRRIGATION SCHEDULING AND CULTIVARS

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Received-08.09.2021, Revised-19.09.2021, Accepted-28.09.2021

Abstract: A field experiment was conducted during *rabi* 2020-21 at Research farm, Department of Soil Science, Chaudhary Charan Singh Haryana Agricultural University, Hisar, to assess the impact of irrigation scheduling on yield attributes, yield and water productivity of various barley cultivars. The experiment was consisted two barley cultivar viz., BH 393 and BH 75 with four moisture regimes viz., 60, 80, 100 and 120 mm cumulative pan evaporation (CPE) in split plot design. First irrigation was applied at 36 days after sowing (DAS) irrespective of irrigation schedules then subsequent irrigations were applied based on moisture regimes. The results of the experiment revealed that maximum number of effective tillers per metre row length (69.75), seeds per spike (62.53) and higher test weight (36.35 g) & grain yield (45.13 q/ha) was recorded in BH-393 than BH-75 (61.93, 52.25, 36.01 & 38.90, respectively). Among moisture regimes, CPE-60 mm recorded significantly higher number of seeds per spike (61.50), effective tiller per meter row length (69.30), test weight (36.63 g) and grain yield (43.70 q ha⁻¹) as compared to rest of the treatments. Highest irrigation water productivity (3.48 kg m⁻³) and total water productivity (1.87 kg m⁻³) was recorded when irrigation were applied at 80 mm CPE followed by irrigation at 100, 120 and the least with irrigation at 60 mm CPE. Among the cultivars, BH 393 performed better in term of irrigation water productivity (3.29 kg m⁻³) and total water productivity (1.91 kg m⁻³).

Keywords: Barley, Grain yield, Moisture regimes, Cultivar, Water productivity

STUDY ON PRODUCTIVITY ENHANCEMENT THROUGH FRONT LINE DEMONSTRATION IN GREEN GRAM AT DEWAS (M.P.)

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Received-02.09.2021, Revised-14.09.2021, Accepted-25.09.2021

Abstract: A total of 50 demonstrations on summer green gram variety MH-421 were conducted by Krishi Vigyan Kendra, Dewas during two the consecutive year of 2019-20 and 2020-21 with 25 demonstrations in each year across 06 blocks of Dewas district to explore the production potential and economic benefits of improved practices. The result of the demonstrations showed that farmers significantly increase the green gram productivity by adopting high-yielding variety (MH 421) and recommended packages of practices. The average yield of 8.99q/ha of green gram was recorded under front line demonstration as compared to farmers' practice of 6.82 q/ha. The increase in the demonstration yield over farmers' practice was 31.90%. Simultaneously higher net returns (Rs. 36272/ha) and B: C ratio (2.20) were recorded in front line demonstrations as compared to farmer's practices (net return of Rs. 21395 and B: C ratio of 1.75). The average extension gap, technology gap and technology index were 217 kg/ha, 101 kg/ha and 10.1%, respectively.

Keywords: CFLDs, Extension gap, Technology gap, Summer green gram, Yield

OVIPOSITION PREFERENCE OF BROWN PLANTHOPPER, NILAPARVATALUGENSE (STAL.) ON RICE GERmplasm OF CHATTISGARH AS A SOURCE OF RESISTANCE

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Received-26.08.2021, Revised-08.09.2021, Accepted-19.09.2021

Abstract: The present studies were conducted in the glass house condition at IGKV Raipur during 2018 -19 with an objectiveovipositional preference of brown planthopper on rice germplasm of Chattisgarh as a source of resistance under control condition. The oviposition and unhatched eggs of female of the brown planthopper, *Nilaparvatalugens*(Stal.) average 75-85.25. The lowest egg laying by female BPH was in accession no. A: 145II and highest in susceptible check TN1 (126.75) and unhatched eggs range from 29.50-57.75, which was highest were resistant germplasm and lowest were TN1(10.25). The average egg laying, nymph emergence and percent unhatched eggs of this pest is described.

Keyword: BPH, Rice germplasm, Screening, Antibiosis, Oviposition

STUDIES ON ANTIXENOSIS MECHANISM OF ADVANCED RICE GENOTYPES AND BIO-EFFICACY OF VARIOUS BIOPESTICIDES AND BOTANICALS AGAINST BROWN PLANTHOPPER

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Received-06.08.2021, Revised-15.09.2021, Accepted-26.09.2021

Abstract: The bioefficacy of three biopesticide namely, *Beauveria bassiana*, *Metarhiziumanisopliae*, *Lecaniciliumlecanii* and two botanicals namely, Neem seed kernel extract and Pongamia leaf extract along with Buprofezin @25% SC as check insecticide and one control treatment were evaluated on 1 month old plants of susceptible genotype State Unified Varietal Trial -4-11. After the 1st week of treatment, plants treated with Buprofezin showed significant reduction whereas there was a negligible reduction in nymph population of the plants that were treated with *Metarhiziumanisopliae*, *Beauveria bassiana*, *Lecaniciliumlecanii*, Neem seed kernel extract and Pongamia leaf extract. The 2nd and 3rd week onwards, the plants treated with NSKE registered reduction in nymphs which was at par with Buprofezin. Pongamia leaf extract also showed significant reduction than the three entomofungal bio pesticides. Out of the three entomofungal biopesticides, *Metarhiziumanisopliae* was found to be more effective than *Beauveria bassiana* and *Lecaniciliumlecanii*. It was hence concluded that botanicals are better prospects for brown planthopper reduction than biopesticides (*M. anisopliae*, *B. bassiana* and *L. lecanii*) which are only able to suppress the brown planthopper population by about 8-17%.

Keywords: Brown planthopper, Biopesticides, Rice

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IMPACT OF NEW HERBICIDES ON THE PRODUCTIVITY OF MAIZE

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Received-03.09.2021, Revised-15.09.2021, Accepted-24.09.2021

Abstract: A field experiment was conducted during the *kharif* season 2020-21 at Instructional-cum-Research Farm, Raj Mohini Devi College of Agriculture & Research Station, Ambikapur (C.G.). Soil of the experimental field was sandy loam in texture. To evaluate the “Impact of new herbicides on the productivity of maize” under Northern hill zone of Chhattisgarh to find out the best chemical weed management practices in maize. Eight treatments were evaluated in a randomized block design with three replications. 2 HW at 20 and 40 DAS were recorded lowest weed density, weed fresh & dry weight, weed index and higher weed control efficiency (72.64%) found very effective against complex weed flora and also recorded highest growth parameters, yield attributes *viz.*, no. of cob plant⁻¹, no. of kernel cob⁻¹ and kernel yield (5.98 t ha⁻¹) followed by atrazine 1000 g/ha as PE fb tembotrine 110g/ha as PoE (5.83 t ha⁻¹) and atrazine 1000 g/ha as PE fb topramezone 25 g/ha as PoE (5.67 t ha⁻¹). Highest net returns (Rs.108045 ha⁻¹) was also recorded under 2 HW at 20 and 40 DAS followed by atrazine 1000 g/ha as PE fb tembotrine 110g/ha as PoE (Rs.105487 ha⁻¹) but higher B:C ratio (2.58) was noticed under application of atrazine 1000 g/ha as PE fb tembotrine 110g/ha as PoE followed by atrazine 1000 g/ha as PE fb topramezone 25 g/ha as PoE (2.52) due to lower cost of cultivation as compare to 2 HW at 20 and 40 DAS.

Keywords: Maize, Weed management practices, Atrazine, Pre and post emergence herbicides

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STUDIES ON SOCIO-ECONOMIC CHARACTERISTICS AND ADOPTION LEVEL OF CONTROL MEASURES OF INSECT PESTS BY CHICKPEA GROWERS IN KABIRDHAM, CHHATTISGARH

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Received-05.09.2021, Revised-16.09.2021, Accepted-27.09.2021

Abstract: The present study was conducted during the year 2020-21 in the Kabirdham district of Chhattisgarh state to find out the socio-economic characteristics and adoption level of chickpea cultivators regarding control measures of major insect pests. There are 28 districts in the state, out of which Kabirdham district was selected purposively. Information was obtained with the help of pre-tested structured interview schedule by personal interview. Collected data were analyzed by using

suitable statistical tools. The results of the study revealed that most (62.00%) of the chickpea growers were in the middle age group, the majority (71.00%) belonged to other backward class, most of them (31.00%) were educated up to primary school level, (55.00%) under the category of medium size of family, (65.00%) of the respondents had participated in one organization, among the chickpea growers majority (40.00%) having small size of landholding, (61.00%) of respondents as their main occupation was agriculture, (73.00%) had annual income up to 1.40 lakh per year, (46.00%) required credit facility, (70.00%) utilized medium level of sources of information, (67.00%) had a medium level of scientific orientation. The overall knowledge index regarding control measures in chickpea was found that most of (66.92%) of cultural practices, followed by (49.92%) chemical practices and maximum adoption index among control measures found that most of (50.37%) of cultural practices, followed by (34.39%) of chemical practices.

Keywords: Chickpea, Socio-economic characteristics, Control measures, Adoption

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ATTITUDE OF RURAL WOMEN TOWARDS SELF HELP GROUP

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Received-11.08.2021, Revised-23.08.2021, Accepted-05.09.2021

Abstract: Self-Help Groups are regarded as one of the most effective tools for the development of women all over the world. The goal of forming and fostering Self-Help Group is to motivate and help women in engaging in productive activities that will improve their quality of life. The most terrible aspect about SHGs is that they go out of business after years of successful operation. The failure of SHGs to be sustainable is a source of concern. The attitudes of rural women regarding SHGs must be investigated in order for SHGs to be sustainable. In this context, the survey was done among rural women in the Rajnandgaon District of Chhattisgarh who were members of SHGs. For the investigation, an attitude scale was created. For data analysis, the proper statistical tests were employed. Emerging challenges in livelihood security necessitate group action; hence, building social capital is the critical in reducing rural poverty in India. Self-help groups (SHGs) have emerged as an effective mechanism of empowerment as well as being an efficient mode of technology dissemination. Data were solicited from 100 respondents randomly selected SHG members of Rajnandgaon district of Chhattisgarh state, India. According to the findings, the majority of member respondents had a moderately good attitude of SHG (31.67 percent of SHG members and 29.17 percent of SHG non members) Members had 17.50 percent of respondents with a very unfavourable attitude, while non-group members had 25.00 percent with a very unfavourable attitude. Respondents with a highly favourable attitude toward SHGs were 20.00 percent in the case of members and 19.16 percent in the case of non-members. The independent sample t-test revealed that non-members of SHGs had a negative attitude was found significantly favorable than members of SHGs ($t=1.133^{**}$).

Keywords: Rural women, Self-help group, Attitude index, Behavior

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MANAGEMENT OF ALTERNARIA LEAF BLIGHT OF CARROT (*DAUCUS CAROTA* L.) BY USING PLANT EXTRACTS AND BIO CONTROL AGENTS

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Received-26.08.2021, Revised-08.09.2021, Accepted-19.09.2021

Abstract: Alternaria leaf blight (*Alternaria alternata*) is considerable damage to carrot crop on aerial part of the plant. The efficacy of six plant extracts and four bio- agents were evaluated against the *A. alternata* incite carrot leaf blight under *in vitro* condition. Extract of garlic (*Allium sativum*) (clover), and neem (*Azadirachta indica*) (leaf) were effectively inhibit the growth of pathogen, at two different concentrations *viz.* 5% and 10% along with control. Among the botanicals, the garlic cloves extract was observed to be all most effective resulting in 68.33% & 80% inhibiting the mycelial growth followed by Neem leaf extract resulting in 60.44% & 73.98% inhibiting the mycelial growth, at 5% and 10% concentration, respectively.

Bio control agent i.e. *Trichoderma viride* and *Trichoderma harzianum* which *in vitro* evaluated could suppress the growth of pathogen. Among the all bio- inoculants *Trichoderma viride* was recorded superior in 77.13% mycelial growth inhibition followed by *Trichoderma harzianum* was recorded in 70.41% mycelial growth inhibition.

Keywords: Plant extracts, Bio-inoculants, Carrot, *In vitro*