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Content

RESEARCH ARTICLES

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ASSESSMENT OF DIFFERENT GROWTH MEDIA ON *CORYNESPORA CASSIICOLA* UNDER *IN VITRO* TEST

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Abstract: Cotton (*Gossypium hirsutum* L.) is one of the world's most important fiber crops with a significant economic and social impact. It is the world's oldest commercial crop, which provides fiber for mankind's garments. It is also known as "The king of fibers" or "The white gold". Cotton is primarily a raw material for a thriving textile industry and is also one of the most ancient and essential commercial crops, next to food grains. Among which, the Corynespora leaf spot of cotton caused by *Corynespora cassiicola* is observed in moderate form causing considerable damage in recent times but the disease has the potential to be severe and it could become significant concern for the cotton growers. Here in this experiment, seven different growth media were tested for their suitability for the mycelial growth, colony colour, cultural characteristics and sporulation of the *C. cassiicola* under *in vitro* test. Among the seven different growth media tested, Potato dextrose agar and V-8 Juice media proved the best growth media for the mycelial growth of the pathogen. The best sporulation of *C. cassiicola* was observed in Potato dextrose agar media, while poor sporulation was observed in Nutrient agar media.

Keywords: Cotton, *Gossypium spp*, Treatment, Disease, Media, Sporulation

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COMPARATIVE ALLELOPATHIC INTERACTIONS OF *S.TORVUM* (SW.) AND *T. PORTULACASTRUM* (L.) WITH *V. UNGUICULATA* (L.) WALP.VAR. PK

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Abstract: Studies were carried out to determineallelopathic interactions of a perennial weed *Solanumtorvum* (Sw.) (Solanaceae) and a seasonal weed *Trianthema portulacastrum* (L.) (Aizoaceae) with a leguminous crop *Vigna unguiculata* (L.)Walp.var. Pusa Komal (Lobia) at seedling stage. When Lobia seeds were grown in different concentration of *S. torvum* leaf leachates, the morphological attributes like % germination, shoot length, root length, biomass, vigour index, tolerance index, germination speed and biochemical parameters viz. chlorophyll content, protein, α-amylase and peroxidase activity increased maximallyat 2% concentration of*S. torvum* leaf leachate (SLL) as compared to control (DDW). On the other hand, in seedlings grown in different concentrations of *T. portulacastrum* leaf leachates (TLL), most of morphological and biochemical parameters increased maximally at 1% concentration. There was negligible germination in 10% *T. portulacastrum* leaf leachate showing highest phytotoxicity at this concentration. The studies indicate that*V. unguiculata* var. PK underwent stimulation/toleranceupto 2% SLL, while seedlings exhibit stimulation at 1% TLL and further higher concentrations of SLL/TLL are phytotoxic to *V. unguiculata* var. PK as compared to control. Studies also indicate that *T. portulacastrum* leaf leachate exhibits more phytotoxicity on *Vignaunguiculata* var. PK as compared to *S. torvum* leaf leachate.

Keywords: *Solanum torvum*,Tolerance index, *Trianthema portulacastrum*, Vigour index

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FORAGING BEHAVIOR OF EUROPEAN HONEY BEE, *APIS MELLIFERA* (HYMENOPTERA-APIDAE) ON SPONGE GUARD, *LUFFA CYLINDRICA* (L.) FLOWERS IN SURGUJA DISTRICT OF CHHATTISGARH, INDIA

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Abstract: A study was undertaken at Raj Mohini Devi College of Agriculture and Research station, Ambikapur (Chhattisgarh) substation of Indira Gandhi Krishi Vishwavidyalaya, Raipur (Chhattisgarh) India. The foraging behavior of European honey bee, *Apis mellifera* was observed in sponge guard flowers during 16 August 2022- 20September 2022. The maximum foraging activity of honey bee was observed first week of September 2022 (9.10 bees/5min/m^2) followed by fifth week of August 2022 (7.78 bees/5min/m^2) and first week of September 2022 (9.10 bees/5min/m^2) however the lowest population was recorded during third week of September 2022 (2.56 bees/5min/m^2). Similarly during the different hours of the day, the maximum population of honey bees was recorded at 1000 hrs. (9.87 bees/5min/m^2) followed by at 1200 hrs. (9.07 bees/5min/m^2) and at 1400 hrs. (5.62 bees/5min/m^2). However, the lowest population was recorded at 1600 hrs. (2.08 bees/5min/m^2).

Keywords: Sponge guard flowers, *Luffa cylindrical, Apis mellifera*, Foraging behavior

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EFFECT OF WEED CONTROL PRACTICES ON GROWTH AND YIELD OF BLACK GRAM (*VIGNA MUNGO* L.)

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Abstract: The investigation was undertaken at the Instructional Cum Research Farm, Barrister Thakur Chhedilal College of Agriculture and Research Station, Bilaspur (C.G.) during the *kharif* season of 2023. The experiment was conducted using a randomized block design (RBD) with ten different treatments, each replicated three times. The treatments consisted of ten weed management practices *viz*., control (T_1), weed free (T_2), metribuzin (70 WP) 440 g ha^{-1} as pre-emergence (T_3), pendimethalin (30 EC) 850 g ha^{-1} as pre-emergence (T_4), T_3 + hand weeding at 20 DAS (T_5), T_4 + hand weeding at 20 DAS (T_6), imazethapyr (10 SL) 75 g ha^{-1} at 20 DAS (T_7), T_3 + imazethapyr (10 SL) 75 g ha^{-1} at 20 DAS (T_8), T_4 + imazethapyr (10 SL) 75 g ha^{-1} at 20 DAS (T_9) and two hand weedings at 20 and 40 DAS (T_{10}). The black gram variety Mash 338 was grown as test crop on July 22, 2023 and harvesting was done on October 28, 2023. The results of the experiment indicated that the seed yield, stover yield and harvest index were maximum under weed free (T_2), followed by T_4 + hand weeding at 20 DAS (T_6) and T_3 + hand weeding at 20 DAS (T_5). T_4 + hand weeding at 20 DAS (T_6) and T_3 + hand weeding at 20 DAS (T_5) were most appropriate for reducing weed density and gave highest weed control efficiency. On July 22, 2023, the black gram variety Mash 338 was planted as a test crop and on October 28, 2023, it was harvested. According to the experiment's findings, weed free (T_2) had the highest seed yield, stover yield and harvest index. T_4 + hand weeding at 20 DAS (T_6) and T_3 + hand weeding at 20 DAS (T_5) were the next best treatments. The best treatments for lowering weed density and providing the highest weed control efficacy were T_4 + hand weeding at 20 DAS (T_6) and T_3 + hand weeding at 20 DAS (T_5). According to an economic analysis, treatment weed free (T_2) had the best net return (66350.50 ` ha^{-1}), which was followed by T_4 + hand weeding at 20 DAS (T_6) and T_3 + hand weeding at 20 DAS (T_5). In contrast, the B:C ratio reached its maximum with T_4 + hand weeding at 20 DAS (T_6) and T_3 + hand weeding at 20 DAS (T_5).

Keywords: Black gram, Imazethapyr, Pendimethalin, Metribuzin, Economics, Yield

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EFFECT OF NUTRIENT MANAGEMENT AND PLANT GROWTH REGULATORS ON YIELD AND YIELD ATTRIBUTES OF WHEAT (*TRITICUM AESTIVUM* L.)

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Abstract: The present exploration entitled "Effect of nutrient management and plant growth regulators on growth and yield of Wheat(*Triticum aestivum* L.)" was carried out during *Rabi* season 2022-23 at Instructional farm, DKS College of Agriculture and Research station, Bhatapara (C.G.). The soil of the experimental site was clays in texture. The was laid out in randomized block design with three replications. Various growth parameters were measured at different stages of the wheat crop, and the results were analyzed. The results demonstrated a significant impact of nutrient management and PGR on various growth parameters of wheat. At 30, 60, 90 days after sowing, and at harvest, treatment T10 (75% RDF + Chlormequat chloride (Lihocin) @ 0.2 % + Tebuconazole @ 0.1% at first node (35 DAS) & boot leaf stage (60 DAS) consistently exhibited the significant reduction in plant height. It also resulted in the maximum number of leaves and tillers at 30, 60, 90 days after sowing, and at harvest.treatment T_{10}(75% RDF + Chlormequat chloride (Lihocin) @ 0.2 % + Tebuconazole @ 0.1% at first node (35 DAS) & boot leaf stage (60 DAS) showed the highest grain yield and straw yield at harvest, indicating its positive influence on the yield of wheat. The study also examined the dry matter accumulation, crop growth rate, relative growth rate, leaf area index, harvest index.Treatment T_{10}(75% RDF + Chlormequat chloride (Lihocin) @ 0.2 % + Tebuconazole @ 0.1% at first node (35 DAS) & boot leaf stage (60 DAS) consistently showed the maximum values for these parameters at different stages of growth, suggesting its potential in enhancing wheat productivity followed by T_9(75% RDF + Chlormequat chloride (Lihocin) @ 0.2 % + Tebuconazole @ 0.1% at first node (35 DAS) & boot leaf stage (60 DAS).

Keywords: Chlormequat chloride (Lihocin), Nutrient management, *Triticum aestivum*, Tebuconazole