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GENETIC ANALYSIS FOR FRUIT YIELD AND ITS COMPONENT TRAITS IN TOMATO (*SOLANUM LYCOPERSICUM* L.) POPULATION

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Abstract: The present investigation was undertaken to study the genetics of fruit yield and yield components traits through generation mean analysis, which facilitates the idea about nature of gene action (Additive, Non-additive) as well as epistasis interaction involved in the expression of the trait. A six generations [Parents, F₁, backcrosses (B₁ and B₂) and F₂] of the five crosses of tomato, 1) GAT-4 × AVTOV 1002, 2) ATL-11-05 × AVTOV 1002, 3) GT-2 × AVTOV 1008, 4) AVTOV 1007 × AVTOV 1005/2 and 5) IIHR-329 × IIHR-335 were grown in compact family block design at the field of Main Vegetable Research Station, Anand Agricultural University, Anand. Both type of additive and non-additive gene effects found significant for majority of the yield contributing and biochemical traits in the studied five crosses. The magnitude of dominant gene effects was much higher than the additive gene effects in all the five crosses for yield contributing traits. This indicated predominant effect of dominance gene effects in the inheritance of yield and yield attributing traits involved in the expression of the traits. Contribution of duplicate type of epistasis, indicating complex inheritance pattern for the traits. Recurrent selection and bi-parental mating should be used for the improvement of the characters which shows the predominant dominant gene effect. However, complementary epistasis also found in some of cross combinations suggesting selection can be useful in subsequent generations for improvement of these characters.

Keywords: Additive, Bi-parental mating, *Solanum lycopersicum*, Tomato

ASSESSMENT OF ANTIUROLITHIATIC PROPERTY OF PHYTIC ACID AND EXTRACTS OF *PRUNUS DULCIS*, *MUSA ACUMINATA*, *PISUM SATIVUM* BY THE INHIBITION OF FORMATION OF CALCIUM OXALATE CRYSTALS

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Abstract: The problem of kidney stone formation among the people is growing at a distressing frequency. Reason behind this is the non-favourable food habits, infections in the renal organs and low water consumption and retention by the body. Thus the best way to address the situation of kidney stone formation is through their inhibition at early or transient stage through the use of infusions of plant molecules which form part of our daily diet. The study was concentrated around the inhibition and modulation of calcium oxalate monohydrate crystals and its visualization and characterization when they are under the influence of prepared plant infusions and solutions. The modulations were achieved by using phytic acid, extracts of *Prunus dulcis* (Almond), *Musa acuminata* (Banana) and *Pisum sativum* (Peas). The inhibition was planned via phytic acid solution of 1mg/mL concentration and infusions of plant extracts of 20% (w/v) concentration and the crystals were prepared using double displacement reaction between calcium chloride and oxalic acid. XRD and FTIR were used to characterize the formed crystals whereas visualization and nephelometry were used to study inhibition. All the infusions and solution have shown significant inhibitory effect with maximum inhibition of 51.38% shown by phytic acid and followed by 41.58%, 26.86%, 28.14% inhibitions by banana, pea and almond respectively. The study concluded that phytic acid have maximum inhibitory effect on calcium oxalate crystals among the used components and can be used to prevent the formation of urinary calculi.

Keywords: Calcium oxalate crystals, Kidney stone, Nephelometry, Phytic acid

EFFECT OF MICRONUTRIENT APPLICATION ON GROWTH, YIELD ATTRIBUTES, GRAIN AND BIOLOGICAL YIELD OF URDBEAN (*VIGNA MUNGO* L.)

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Abstract: A field experiment was conducted during the summer 2019 at Crop Research Centre of S.V.P. University of Agriculture and Technology, Meerut (U.P.) to study the effect of micronutrient application on growth, yield attributes, grain and biological yield of Urdbean (*Vigna mungo* L.). The soil of the experimental field was well drained, sandy loam in texture, low in organic carbon and available nitrogen, medium in available phosphorus, potassium, sulphur and slightly alkaline in reaction. The nine treatments of nutrient management viz., Control, foliar spray of water at 20 & 40 DAS, foliar spray of zinc sulphate (0.5%) at 20 & 40 DAS, foliar spray of ferrous sulphate (0.5%) at 20 & 40 DAS, foliar spray of copper sulphate (0.1%) at 20 & 40 DAS, foliar spray of zinc sulphate (0.5%)+ ferrous sulphate (0.5%) at 20 & 40 DAS, foliar spray of zinc sulphate (0.5%)+ copper sulphate (0.1%) at 20 & 40DAS, foliar application of ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS and foliar application of zinc sulphate (0.5%) + ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS were laid out in RBD with three replications. Urd variety PU-31 was sown on March 18 and harvested on June 16, 2019. Results revealed that growth parameters viz. plant height, number of branches/plant, number of trifoliolate leaves/plant, dry matter accumulation/plant, and leaf area index were significantly higher under foliar application of zinc sulphate (0.5%) + ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS which was significantly superior over rest of the treatment at all the stages of crop growth. Similarly, yield components viz. pod length (cm), number of pod/plant, number of grains/pod, and 1000 grain weight was found significantly higher with foliar application of zinc sulphate (0.5%) + ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS which was significantly superior over rest of the treatment. The study also revealed that grain, straw and biological yield were recorded significantly higher in the treatment with foliar application of zinc sulphate (0.5%) + ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS which was significantly higher than rest of the treatments.

COMMUNICATIONAL MANNERS OF TRIBAL FARMERS FOR *BADI* FARMING IN BASTER PLATEAU OF CHHATTISGARH

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Abstract: The presented research work carried out in Baster plateau of Chhattisgarh, the ex-post facto research method used, 320 respondents taken for the study. Respondents got information regarding *badi* farming from different sources, whereas most of the respondents often got information from progressive farmers and 21.25 per cent respondents obtained information some time from progressive farmers. 9.69 per cent obtained information from NGO's and 0.63 per cent respondents obtained information often, while 13.63 per cent got information sometime. 31.25 per cent respondents often believed and 22.19 per cent respondents sometimes believed on progressive farmers. 2nd highest credible source was their own relatives where, 24.06 per cent respondents' often believed, followed by 19.06 per cent respondents sometimes believed on relatives. Respondents had frequently contacted with RHEOs in which 27.81 per cent of the respondents contacted sometime with RHEOs, followed by 23.44 per cent respondents contacted often with of RHEOs.

Keywords: Communicational manners, Tribal farmers, Chhattisgarh

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ISOLATION AND IDENTIFICATION OF STAPHYLOCOCCUS AUREUS USING STANDARD METHODS

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Abstract: A methicillin resistant *S. aureus* (MRSA) screen tests solely for the presence of MRSA and no other microbes. This test is used to screen for MRSA in patient in hospitals. The first strain of penicillin resistant *S. aureus* was isolated in London, England hospitals. *Staphylococcus* is a versatile organism with several virulent characteristics and resistance mechanisms. Multidrug resistance is now the norm among the Gram-positive bacteria pneumococci, enterococci and staphylococci. *S. aureus* is perhaps the pathogen of greatest concern because of its intrinsic virulence, its ability to cause a diverse array of life-threatening infections in humans and in various animal species, and its capacity to adapt to different environmental conditions. In the present study, a total of 36 isolates of MRSA were obtained. All the suspected colonies were gram stained and plated on manitol salt agar. Growth of golden yellow colonies of *Staphylococcus aureus* on manitol salt agar plate. On gram staining gram-positive cocci in clusters were observed on all the slides. On manitol salt agar, small yellow manitol fermenting colonies were obtained. On MacConkey agar small light pink lactose fermenting colonies were observed. In the present study, the efficiency of the tube coagulase test can be markedly improved by sequel testing of the isolates with Mannitol salt agar, DNase and Tube coagulase. There is no single phenotypic test (including tube coagulase) that can guarantee reliable results in the identification of *Staphylococcus aureus*.

Keywords: Gram-positive, MRSA, Resistant strain, *Staphylococcus*, Virulent

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ROLE OF FARM SCIENCE CENTRE ON AGRICULTURAL INFORMATION NETWORKS OUTPUT AMONG THE FARM WOMEN OF NORTH BENGAL

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Abstract: Farm Science Centre or Krishi Vigyan Kendra is the agricultural extension centre of India. Farm Science Centre plays an important role in providing different agricultural services to farm women. But a few studies were found on the role of the Farm Science Centre on knowledge development of farm women. Keeping this in view, a study was conducted on the role of Farm Science Centre on agricultural information network output among the farm women. The study was conducted in the northern part of West Bengal with help of an ex-post facto research design and multistage random sampling technique. It is observed that majority of the farm women received training services from the Farm Science Centre followed by technical support. It is also observed that the agricultural information network output level of farm women was significantly influenced by Farm Science Centre.

Keywords: Farm Science Centre, Farm women, *Krishi Vigyan Kendra*

EFFECT OF MICRONUTRIENT APPLICATION ON NODULATION AND QUALITY PARAMETERS OF URDBEAN (*VIGNA MUNGO L.*)

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Abstract: A field experiment was conducted during the summer, 2019 at Crop Research Centre of Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut (U.P.) to study the effect micronutrient application on yield attributes and yield of Urdbean (*Vigna mungo L.*). The soil of the experimental field was well drained, sandy loam in texture, low in organic carbon and available nitrogen, medium in available phosphorus, potassium and sulphur and slightly alkaline in reaction. The nine treatments of nutrient management viz., Control, foliar spray of water at 20 & 40 DAS, foliar spray of zinc sulphate (0.5%) at 20 & 40 DAS, foliar spray of ferrous sulphate (0.5%) at 20 & 40 DAS, foliar spray of copper sulphate (0.1%) at 20 & 40 DAS, foliar spray of zinc sulphate (0.5%)+ ferrous sulphate (0.5%) at 20 & 40 DAS, foliar spray of zinc sulphate (0.5%)+ copper sulphate (0.1%) at 20 & 40DAS, foliar application of ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS and foliar application of zinc sulphate (0.5%) + ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS were laid out in RBD with three replications. Results revealed that the higher number of nodules and nodule dry weight were recorded with foliar application of zinc sulphate (0.5%) + ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS while lowest was recorded in control. Similarly, foliar application of zinc sulphate (0.5%) + ferrous sulphate (0.5%) + copper sulphate (0.1%) at 20 & 40 DAS is also advantageous for obtaining higher protein content and protein yield in urd bean crop.

Keywords: Effect, Micronutrient, Nodulation, Urdbean