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USING OF MEDICINAL PLANTS AMONG PEOPLE LIVING WITH HIV

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Abstract: The using of traditional medicine in the world is well recognized to treat different health problems, which is evidenced by the variety of natural and plant products available on the market and the presence of markets specialized in trading medicinal plants. The aim of this study was to interview a group of people living with HIV on using of medicinal plants. Participants (n = 86) were grouped into those who frequently use medicinal plants (n = 51) and those who do not use any type of complementary medicine (n = 35). We found that all study participants had used complementary therapies to treat diseases before being diagnosed reactive to HIV, and a high proportion of these participants turn constantly to the using of medicinal plants to supplement their anti retroviral treatment in order to maintain and improve their health and quality of life.

Keywords: Medicinal plants, People, HIV

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SCREENING OF DIFFERENT ENTRIES AGAINST SHOOT FLIES AND STEM BORER TOLERANCE IN LARGE SCALE VARIETAL TRIAL OF GRAIN SORGHUM

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Abstract: Sorghum (*Sorghum bicolor* L.) is one of the main staples for the world's poorest and most food-secure people commonly known as *jowar* in the Indian sub-continent, it grows well in both summer and winter, and is thus both a *rabi* and *kharif* crop. In this experiment, 21 entries including two checks were evaluated for pest resistance at three different centre/locations of Gujarat *viz*., Dediapada, Deesa and Surat. In pooled analysis, shoot fly dead heart per cent at 14 DAE over three location, resistant check IS 18551 (5.56%) was recorded significantly lowest damaged. The shoot fly dead heart per cent at 28 DAE was found significantly lower in resistant check is 18551 (14.75) whereas, for stem borer damaged per cent at 45 DAE over three location, significantly lowest damaged was found in resistant check. Considering performance at locations, the entry SR 2879 gave significantly lowest damaged by stem borer.

Keywords: Deadheart, Screening, Shoot fly, Sorghum, *Sorghum bicolor*, Stem borer

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FRUIT NECTAR AS A REFRESHING BEVERAGE AN OVERALL REVIEW

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Abstract: An attempt was made to update on review available literature on fruit nectar prepared by cooled method is well organoleptic acceptability. With more grid cell due to sedimentation occurs during storage and nectar can be prepared with the combination of 20 per cent fruit pulp and 15 ^{0}Brix TSS and 0.3 per cent acidity is best for nectar preparation and its storage. This combination may be varies according to fruits and their blending, where as the above combination showed less physico-chemical changes and also showed higher organoleptic score. Fruit nectar can be stored better at ambient temperature more than six months.

Keywords: Fruit nectar, Farmers, Production, Harvest

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RESPONSE OF *BRASSICA CAMPESTRIS* L. CV. *VARUNA* TO SIMULATED ACID RAIN

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Abstract: The effects of simulated acid rain (pH 4, 0) have been studied on *Brassica campestris* L. cv. *varuna*. The plant growth in terms of shoot and root length, number of leaves per plant and number of lateral branches, was reduced significantly in HNO_3, H_2SO_4 and $HNO_3 + H_2SO_4$ simulated acid rain. Reduction in dry weight and net primary productivity were also observed and the effects were found to be age dependent. Flowering was delayed by simulated acid rain. There was also a significant reduction in yield. The effect of HNO_3 simulated acid rain was greater than H_2SO_4 simulated acid rain and $HNO_3 + H_2SO_4$ simulated acid rain caused maximum reduction in plant growth and yield. A reduction in chlorophyll a, chlorophyll b, and total chlorophyll contents of leaves was also observed after 10 days of treatment. The loss in chlorophyll a was higher than chlorophyll b. A significant increase was observed in nitrogen content on application of HNO_3 simulated acid rain and sulphur content in H_2SO_4 simulated acid rain. The plants subjected to simulated acid rain did not show any visible foliar injury symptoms up to 35 days but subsequently these symptoms appeared.

Keywords: *Brassica campestris*, Acid rain, Plant, Shoot, Root

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ANTIBACTERIAL ACTIVITY OF *HELICTERES ISORA* FRACTIONS

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Abstract: The aim of the present study was to evaluate the antibacterial activity of *Helicteres isora* extracts. We have tested different concentrations of three Ethanol, aquoues and hydroethanol fractions of *H. isora* root on selected pathogenic gram positive (*Staphylococus aureus*, *Bacillus subtilis*, *Enterococcus faecalis* and *Bacillus cereus*) and gram negative bacteria (*Pseudomonas aerogenosa, Proteus mirablis*, *Salmonella typhie*, *Klebsiella pneumonia*, *Proteus vulgaris* and *Escherichia coli*) with the well diffusion method in agar. All the tthree extracts exhibited antibacterial activity against seven strains of pathogenic bacteria. Hydroethanol extract showed best antibacterial activity as compared to both other extracts. Ethanol extract showed good antibacterial activity against *K. pneumonia* in comparison to other extracts. However aqueous extract showed minimum antibacterial activity against all the pathogens. This finding showed the good antimicrobial activity of *H. isora*, so it forms the basis for further antibacterial drug isolation from this medicinal plant.

Keywords: *Helicteres isora*, Antibacterial, Hydroethanol, Medicinal plant

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DESIGN AND DEVELOPMENT OF VACUUM CYLINDER METERING MECHANISM FOR PLANTING OF BOLD SEEDS

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Abstract: Groundnut, maize and pigeonpea are major bold seeds crop in India. Planting of these bold seeds is a very drudgery and time consuming operation. To address this issue, there is a need to design and develop the vacuum cylinder metering mechanism for planting of bold seeds like groundnut, maize and pigeonpea. The design of the seed metering cylinder (length 1630 mm and diameter 80 mm) was based on the physical property of the bold seeds. It was made of an M.S. sheet. Seeds are held to the metering hole of the cylinder by suction pressure. The size of circular metering orifice was kept as 2.5 mm. Total 54 orifices having same size was made on the seed metering cylinder at 9 different locations. Each location is having 6 orifices, at an angular distance of 60^0. The vacuum rod and the metering cylinder are placed concentrically. The length of the rod is 2320 mm and the diameter of rod is 25mm. The size of the hole in the vacuum rod is 6 mm and total no. of holes are 18, placed at 9 different locations (2 on each location at an angular distance of 180^0). Vacuum is created in this rod and goes down the vacuum cylinder. The metering cylinder rotates over rod and pick up the seeds through the seed hopper while passing through it.To evaluate the performance of vacuum cylinder pickling % & metering efficiency of metering mechanism were considered under different suction pressure i.e. for groundnut seed 4500 Pa, 5000 Pa and 5500 Pa, for maize seeds 3500 Pa, 4000 Pa and 4500 Pa while for pigeonpea seeds 1500Pa, 2000 Pa and 2500 Pa. On the basis of superior performance the optimum suction pressure inside the vacuum cylinder for groundnut seed was found to be 5000 Pa with a metering efficiency of 106.67 % and maximum picking percentage of 96%. Similarly the optimum suction pressure for maize seed was found to be 4000 Pa with a metering efficiency of 108.88 % and maximum picking percentage of 97% while for pigeonpea seed these values were found to be 2000 Pa, 110 % and 92 %. Hence it was concluded that the designed and developed vacuum cylinder metering mechanism is capable and suitable for planting of bold seeds like groundnut, maize & pigeonpea.

Keywords: Seed, Maize, Groundnut, Pigeonpea, Harvest

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INTERACTIVE EFFECT OF AUXIN AND SIMULATED ACID RAIN ON THE FRESH WEIGHT AND DRY WEIGHT OF THE SEEDLINGS OF *CAPSICUM FRUTESCENS* VAR. *CALIFORNIA WONDER* AND *SWEET MAGIC*

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Abstract: Fresh weight and dry weight are important in deciding the growth of plants. They are related to health of plants. Therefore, studies have been carried out on dry weight and fresh weight of seedlings of *Capsicum Frutescens* var. *California wonder* and *Sweet magic* under the influence of simulated acid rain, auxin as well as interactive effect of both of them at different concentrations during present study and optimum concentration has been determined for the best growth.

Keywords : Simulated acid rain, Auxin , Fresh weight , Dry weight

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ECONOMIC FEASIBILITY AND PROFITABILITY OF GLADIOLUS (*GLADIOLUS HYBRIDUS* L.) CULTIVATION UNDER OPEN FIELD CONDITION

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Abstract: Gladiolus occupies a pristine place in the garden for its magnificent inflorescence, wide array of colours, and fascinating varieties of shapes and sizes. The demand for gladiolus cut flower is gaining momentum with increasing aesthetic sense and higher socio-economic standard of the people. Owing to its ever increasing demand every year at a galloping speed has now created enough opportunities for economic growth potential in future. Hence, to evaluate economic viability of cultivation as a commercial cut flower crop the present investigation was carried out under open field condition. Economics study showed that there is a significant difference with respect to genotypes. Among the different genotypes studied highest gross returns were obtained from genotype Arka Amar (Rs. 17,58,000/ha), followed by Tilak (Rs. 12,78,000/ha), Sagar (Rs. 12,78,000/ha) and Aarti (Rs. 12,42,000/ha) with a net return of Rs. 12,75,050, 795050, and Rs. 759050/ha, respectively compared to other genotypes grown under open field condition. The investment in gladiolus crop was found to be economically sound and highly remunerative as these genotypes produce highest yield (flower spikes) per hectare resulted in maximum B:C ratio of 2.64, 1.65 and 1.5 respectively, hence the same can be exploited for commercial cultivation to meet the increasing global demand.

Keywords: Gladiolus, Genotypes, Economics, B:C ratio, Open field condition

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EFFECT OF TILLAGE AND NITROGEN MANAGEMENT ON, GRAIN QUALITY, PRODUCTIVITY AND SOIL HEALTH OF WHEAT (*TRITICUM AESTIVUM* L)" UNDER SUBTROPICAL CLIMATIC CONDITION

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Abstract: Conservation tillage and nitrogen may improve soil fertility, yield on sustainable basis. The aim of this study was to evaluate the impact of three tillage systems viz. zero (ZT), reduced (RT), and conventional tillage (CT) with or without residue retention/incorporation and five N rates (0, 80, 120, 160, and 200 kg·N·ha^{-1}) on yield and grain quality, soil health i.e. soil organic matter (SOC), bulk density, infiltration rate and microbial biomass carbon of wheat (*Triticum aestivum* L.). Nitrogen rates significantly affected yield and quality with highest values recorded at 200 kg·N·ha^{-1}. Mean maximum grain yield (46.13 and 47.18 q ha^{-1} and protein % 11.1 to 12.1%, gluten 10.6% and starch 63.5 to 67.5%) could be achieved at 160 kg·N·ha^{-1}. The use of ZT with residue retention and RT with residue retention for two crop cycle increased soil organic carbon by 54.68% and 54.22% more than that of conventional tillage (CT), respectively. The SOC, WSOC, POC and MBC were highest in ZT compared to other tillage systems. Though tillage × N interactions were not significant for most of the parameters under study, the overall effect of ZT with 160 kg·N·ha^{-1} appeared to be most favourable compared to RT and CT. The results suggest that ZT with 160 kg·N·ha^{-1} was optimum and sustainable strategy to achieve higher yield and also to improve SOC and MBC on sandy loam soil of subtropical India.

Keywords: Wheat; Tillage, Nitrogen, Grain quality, Soil health, Productivity

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EFFECT OF ORGANIC AND INORGANIC SUBSTANCE ON SPROUTING OF ELEPHANT FOOT YAM (*AMORPHOPHALLUS PAEONIIFOLIUS* DENNST)

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Abstract: Results over two years indicated that among the different pre-planting treatments thiourea at 400 ppm (10.00 days) recorded minimum number of days to first emergence and maximum sprouting per cent (97.22 per cent) which showed 24.26 per cent increase in sprouting over control treatment. The minimum number of days to 50 per cent emergence was recorded under KNO_3 at 250 ppm (33.33) followed thiourea at 400 ppm (33.50).

Keywords: Elephant foot yam, Sprouting, Thiourea, KNO_3, GA_3