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MEDICINAL PROPERTIES OF PLANT-DERIVED COMPOUNDS FOUND IN BEE VENOM

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Abstract: Bees are the most important pollinating insects of plants. They perform this function involuntarily by carrying on the pollen that falls on them when they feed on floral nectar. The nectar nutrient content and composition vary among plant species. Nectar is an aqueous solution of sugars, amino acids, minerals, and plant-derived compounds such as alkaloids, phenolics and terpenes. Apitherapy is an alternative medicine used instead of conventional medicine to treat health problems. Current studies have focused on the beneficial effects of bee's venom injection, a branch of apitherapy, at local sites. Many of the components of bee venom exhibits several biological properties such as hepato-protective activities, anti-cardiac arrhythmias, antituberculosis, antioxidant, anti-inflammatory, antibacterial and antiviral activities. Currently, there have been described at least 18 molecules in the bee venom as active components exhibiting pharmaceutical properties. Bee venom is a colorless, bitter and acid liquid which includes a mixture of several compounds and proteins. The venom gland of bees is responsible for producing the venom which is also known as apitoxin and plays a defensive role. This liquid is mostly water and a low proportion is dry venom, which contains melittin, adolapin, apamin, mast cell degranulating peptide, enzymes, amino acids, sugars and some volatile compounds. The volatile components of apitoxin include terpenes, phenolics and alkaloids.

Keywords: Medicinal properties, Bee venom, Plant-derived compounds, Phenolics, Terpenes

RECENT WORK ON NIOSOMAL VESICLES: BILAYER STRUCTURE, BASIC COMPONENTS, PREPARATION AND EVALUATION

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Abstract: Vesicular systems are a revolutionary way of administering drugs in a controlled manner to increase bioavailability and prolong the therapeutic effect. Niosomes are hydrated vesicular structures that include a non-ionic surface active agent, cholesterol, and other lipids. Over the liposomes, niosomes have various advantages, such as delivering drugs to specified sites that are non-toxic, stable for a longer time in different situations, and need low production cost. The first cosmetic industry that produced niosomes was L'Oreal. Later on, in the pharmaceutical sector, its applications were

explored. Niosomes are developed by self association of cholesterol and surface active agents in an aqueous phase. Niosomes have the property of biodegradable, biocompatible and nonimmunogenic structure and also show the ability for encapsulation of both types of drugs hydrophilic and lipophilic. Over the last few years, it is studied that niosomes may enhance the drug bioavailability, and provides a novel approach for delivering numerous drugs like- protein therapeutic agents, chemical therapeutic agents and gene substances with less toxicity and desired targeted ability. This review provides complete details on niosomes, structure, types, fabrication processes, factors influencing niosomes competence, benefits and drawbacks, implementations, and cites numerous instance of niosomes studies over the last decade.

Keywords: Niosomes, Non-ionic surfactant, Cholesterol, Non toxic, Liposomes, Vesicles

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REVIEW ON EFFECT OF VARIOUS PARAMETERS FOR ANALYSIS OF RICE YIELD

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Abstract: Climate amendment may be a change within the semipermanent weather patterns that characterize the regions of the world. The term “weather” refers to the short-run (daily) changes in temperature, wind, and/or rainfall of a region. within the long run, the environmental condition change may have an effect on agriculture in many ways in which resembling amount and quality of crops in terms of productivity, growth rates, photosynthesis and transpiration rates, wetness convenience etcetera. Among the crops, rice is a sensitive crop that depends extremely on weather condition. If water isn't the limiting factor, the foremost necessary weather parameters are temperature and solar radiation. precipitation (spatial and temporal variation) is that the direct vital weather parameter in rainfed ecologies. once considering the expansion stages of rice, procreative and ripening stages are the foremost sensitive stages to weather. spike fertility is the most sensitive yield element when rice is subjected to worry viz., low or high temperature, low radiation or water deficit (drought). regulate the cropping schedule to cut back the chance of unfavourable weather throughout the reproductive and ripening stages. For getting high yields, every and each phenophase of rice ought to relish the favourable weather. The review is especially confined to the influence of weather parts throughout completely different phenophase on growth, yield parts and yield of rice.

Keywords: Weather, Rice growth stage, Growth, Yield

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STOMATAL STUDY OF HELIANTHUS ANNUUS L. (SUNFLOWER) IN RESPONSE TO SULPHUR DIOXIDE POLLUTION

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Abstract: One of the major problems now a days is pollution and among various air pollutants, sulphur dioxide (SO₂) is probably the most widespread and intensively studied. Some of the environmental effects of SO₂ include acidification of soils, lakes and rivers on one hand and injuries and devastating damage to vegetation under natural and controlled conditions on the other. The aim of the present study was to find out the impact of sulphur dioxide pollution on the oil yielding cultivar KBSH – 1 of sunflower i.e., *Helianthus annuus* L. (family Asteraceae) on fumigation with four cumulative doses 2612, 3265, 3918 and 4571 µg m⁻³ of SO₂. The findings of the study manifested a decline in the various stomatal parameters (number of stomata and epidermal cells, size of stomatal complex, stomatal index, density and coverage area) on both

adaxial (upper) and abaxial (lower) surfaces of leaves. The stomatal attributes were studied at 30th, 50th, 70th and 90th day of the fumigated cultivar along with a control set.

Keywords: Air pollution, Stomata, Sulphur dioxide, *Helianthus*

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YIELD AND ECONOMICS OF CHICKPEA CULTIVATION AS INFLUENCED BY FRONTLINE DEMONSTRATIONS IN NAGAUR DISTRICT OF RAJASTHAN

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Abstract: Pulses are one of the important food crops globally due to higher protein content. Pulses are an important group of crops in India, which is also responsible for yielding large financial gains by amounting for a large part of the exports. Pulses are the major sources of protein in the diet. The frontline demonstrations of chickpea crop was carried out by Krishi Vigyan Kendra, Nagaur-I, Agriculture University, Jodhpur during rabi seasons from 2016-17 to 2021-22 on 92 ha area with 230 demonstrations in different clusters of Nagaur district of Rajasthan. Results of front line demonstrations showed that the cultivation practices comprised under FLDs viz., use of improved varieties, seed and soil treatments, optimum seed rate, balanced application of fertilizers, line sowing, timely management weeds, insects and disease, produced on an average 1709 kg/ha grain yield of chickpea, which was 22.56 per cent higher as compared to prevailing farmers practice (1395 kg/ha). The front line demonstrations fetched more average gross returns (Rs. 80860/ha), net return (Rs. 50879/ha) and B:C ratio (2.69) with slightly higher investment on cost of cultivation (Rs. 2358/ha) as compared to farmers practice. The average increase in gross return, net return, B:C ratio and cost of cultivation was 22.3, 32.1, 13.0 and 8.5 per cent, respectively over farmers practice. The average extension gap, technology gap and technology index was 314 kg/ha, 692 kg/ha and 28.6 per cent, respectively. It is also observed that majority of the respondent farmers expressed high (53.9%) to the medium (30.0%) level of satisfaction regarding the performance of chickpea under demonstrations.

Keywords: Chickpea, Economics, Gap, Satisfaction, Technology index, Yield

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COMPARATIVE EFFICACY OF IMIDACLOPRID WITH COMBINATION OF NEEM PRODUCTS AGAINST MAIZE STEM BORER, *CHILO PARTELLUS* (SWINHOE)

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Abstract: A field investigation was carried out in *Kharif* season of 2022-2023 at Cental Research Farm (CRF), Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh, India. The experiment was laid in Randomized Block Design with eight treatments each replicated thrice viz., Neem oil 2% 20ml/lit, Azadirachtin 0.3% + Imidacloprid 17.8% SL 1000ppm/ha + 5ml/lit, Neem oil 2% + Imidacloprid 17.8% SL 20ml/lit + 5ml, Imidacloprid 17.8% SL 5ml/lit, Azadirachtin 0.3% 1000ppm/ha, Emamectin benzoate 5% SC 200gm/ha, NSKE 5% 50ml/litre the treatments used in this experiment. Result revealed that among the botanicals and insecticides lowest percent infestation of maize stem borer was recorded in Azadirachtin 0.3% + Imidacloprid 17.8% SL (7.23%), Neem oil 2% + Imidacloprid 17.8% SL (9.75%) was found to be next best treatment followed by Imidacloprid 17.8% SL (10.75%), Emamectin benzoate 5% SC (11.78%), were

found to be effective against Maize stem borer (*Chiloptellus*), next better treatment in order of superiority were Azadirachtin 0.3% (12.76%), Neem oil 2% (13.46%), NSKE 5% (14.98%) and control (26.25%). The highest yield and cost benefit ratio was recorded with Azadirachtin 0.3% + Imidacloprid 17.8% SL (42.72 q/ha), (1:1.70), followed by Neem oil 2% + Imidacloprid 17.8% SL (40.80 q/ha), (1:1.60), Imidacloprid 17.8% SL (37.44 q/ha), (1:1.46), Emamectin benzoate 5% SC (34.79 q/ha), (1:1.39), Azadirachtin 0.3% (31.68 q/ha), (1:1.28), Neem oil 2% (28.54 q/ha), (1:1.32), NSKE 5% (26.49 q/ha), (1:1.11) and control (23.57 q/ha), (1:0.9).

Keywords: Botanicals, *Chiloptellus*, chemicals, Efficacy, Maize

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IMPACT OF INTEGRATED FARMING SYSTEM ON SMALL AND MARGINAL FARMERS OF ROHTAK DISTRICT

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Abstract: A survey on integrated farming system in Rohtak was conducted by CCSHAU Regional Research Station; Rohtak in 2021. The objective of the survey was to compare the economics of integrated farming system with conventional cropping system and to study the constraints in adopting IFS by small and marginal farmers of Rohtak district. A sample of 25 farm households each of crop alone, crop+ dairy, crop + horticulture, crop + vegetable, Crop + Fishery, Crop + horticulture + vegetables and crop +dairy integrated farming systems were selected for giving proportionate allocation to the available integrated farms in 5 villages. The present study confined to Rohtak district in which five blocks i.e. Kalanaur, Meham, Rohtak, Sampla and Lakhna Majra blocks. In this context 5 farmers from each block of Rohtak district has been selected randomly which have adopted Integrated Farming System. Simpler tabular analysis was done for calculating the economics of various enterprises. Among various IFS components highest BC ratio was recorded with Crop + Vegetable + Horticulture (1.72) followed by Crop+ Dairy (1.67) and Crop + Vegetable (1.63). Lowest B: C was observed in crop + fishery. This is due to lower crop yield in areas where fishery is practiced. A sample of 25 farm households each of crop alone, crop+ dairy, crop + horticulture, crop + vegetable, Crop + Fishery, Crop + horticulture + vegetables and crop +dairy integrated farming systems were selected for giving proportionate allocation to the available integrated farms in 5 villages. The BC ratio of Crop + Vegetable + Horticulture and Crop+ Dairy were 21.98 % and 18.43 % higher than Sole Crop (Paddy-wheat).

Keywords: Small farmers, Rohtak district, Food, Fruit, Milk