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Content

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UNVEILING THE ECONOMIC POTENTIAL OF MARINE ALGAE IN INDIA

Sudhir Kumar Yadav[1]* and Mookkan Palanisamy[2]

[1]Botanical Survey of India, CGO Complex, Sector 1, Salt Lake City, Kolkata – 700064
[2]Botanical Survey of India, Central National Herbarium, Botanic Garden, Howrah -711103
Email: skyadavbsic@gmail.com

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Abstract: Algae represent a diverse group of thallophytic plants, which are simple, primitive, autotrophic, and usually aquatic in nature. Globally, *ca*61,145 taxa of algae have been documented taxonomically so far, which include 50,589 taxa of living algae and *ca* 10,556 taxa of fossil algae. In India, *ca* 9085 taxa of algae have been recorded, out of which *ca* 865 taxa are marine macro algae, popularly known as *Seaweeds*. The marine algae are the important components of the biodiversity and play a significant role in the food chain and sustainability of the marine ecosystems. In the recent years, these marine algal resources have gained substantial attention as a promising source of bioactive compounds with potential applications in various industries. The recent comprehensive studies on the seaweeds resources of the Indian coast revealed *ca* 95 taxa, (out of *ca* 865 taxa), consisting of 35 taxa of chlorophyta, 17 taxa of phaeophyta and 43 taxa of rhodophyta, are recognized with economic potential in various forms such as food, fodder and in various industries such as Agar-Agar, Algin, Carageenans, textiles, pharmaceuticals, leather, paint, biofertilizers, cosmetics, paper etc. These include 44 taxa as edible, 20 as fodder, 42 as industrially important, 37 as medicinal and 14 as manure (SLF). Considering these potentials, an attempt has been made to highlights the characteristic features, economic and commercial potentials of these seaweeds in India for future advancements.

Keywords: Marine algae, Carbon sequestration, Economic potential, Phycocolloides, Seaweeds, Secondary metabolites

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IMMUNOMODULATORY PROPERTIES OF PHYTOCOMPOUNDS

Blanca Liliana Sánchez-Rodríguez[1,2], David Pedroza-Escobar*[1], Lisset-Esmeralda González-Manjarrez[2], Alejandra Torres-Flores[2], Irais Castillo-Maldonado[1], DealmyDelgadillo-Guzmán[2], Tania González-Cortés[1], Cecilia Hernández-Morales[3], Pedro IV González-Luna[3], Erika Flores-Loyola[4], Agustina Ramírez-Moreno[4], Joaquín Avalos-Soto[5] and Miguel Ángel Téllez-López[5]

[1]Centro de Investigacion Biomedica. Universidad Autonoma de Coahuila. Unidad Laguna. Torreon, Coahuila, 27000, Mexico
[2]Facultad de Medicina. Universidad Autonoma de Coahuila. Unidad Laguna. Torreon, Coahuila, 27000, Mexico
[3]Facultad de Odontologia. Universidad Autonoma de Coahuila. Unidad Laguna. Torreon, Coahuila, 27000, Mexico
[4]Facultad de Ciencias Biologicas, Unidad Laguna. Torreon, Coahuila, 27087, Mexico
[5]Cuerpo Académico Farmacia y Productos Naturales, Facultad de Ciencias Químicas, Universidad Juárez del Estado de Durango, Gómez Palacio, Mexico.
Email: dpedroza@uadec.edu.mx

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Abstract: Phytocompounds are naturally occurring bioactive molecules synthesized by plants that have demonstrated diverse pharmacological properties, including immunomodulatory effects. These compounds are classified into several categories such as polyphenols, alkaloids, saponins, terpenoids, glycosides, and phytosterols. Phytocompounds can modulate immune responses through mechanisms involving cytokine regulation, immune cell activation, enhancement of antigen presentation, and modulation of inflammatory signaling pathways. This review aims to provide a comprehensive overview of the immunomodulatory properties of several notable phytocompounds, including quercetin, tannic acid, curcumin, vincristine, *Quillaja saponaria*, ginsenosides, betulinic acid, and resveratrol. The therapeutic potential of these compounds is described in contexts such as vaccine adjuvants, treatment of autoimmune and inflammatory disorders, cancer therapy, and infectious disease management. Despite their promising biological activities, challenges remain in terms of standardization, bioavailability, and understanding of their precise mechanisms of action. Future research should focus on improving

phytocompound formulations, elucidating their immunomodulatory mechanisms, and conducting rigorous clinical trials to optimize their therapeutic applications.

Keywords: Phytocompounds, Immunomodulation, *Curcumin*, Vincristine, *Quillaja saponaria*, Ginsenosides, Resveratrol

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FORAGING BEHAVIOUR OF VARIOUS SPECIES OF HONEY BEES

G.P. Painkra*

Indira Gandhi Krishi Vishwavidyalaya, College of Agriculture and Research Station, Shankargarh- 497118, Distt-Balrampur- Ramanujganj (C.G.) India
Email: gppainkrarmd@gmail.com

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Abstract: Foraging behavior is the behavior of honey bees it consists of several behavioral components that include search of food, identification and memorization of food source location, carrying and storing of food and interaction and communication. During the foraging task, honey bees of the same colony share information and communicate each other through a typical dance called waggle dance or tail wagging dance (food source more than 100 meters from the hive) and round dance (food source within about 100 meter away from the hive) of honey bees that looks like the numerical figure eight. This waggle dance was first translated by Karl Von Frisch and won the Noble prize in 1973 for his incredible effort toward investigating the sensory perception in honey bee.

Keywords: Foraging behavior, Honey bees, *Apis mellifera, Apis dorsata, Apis cerana indica, Apis florea, Trigona*

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OCCURRENCE AND DISTRIBUTION OF MAJOR DISEASES OF RICE IN SOUTHERN DISTRICTS OF TAMIL NADU

N. Rajinimala[1]*, K. Elanchezhyan[2], K. Kavitha [3] and J. Sheela[1]

[1] Department of Plant Pathology, Tamil Nadu Agricultural University, V.O. Chidambaranar Agricultural College and Research Institute, Killikulam
[2] Department of Agricultural Entomology, Tamil Nadu Agricultural University, V.O. Chidambaranar Agricultural College and Research Institute, Killikulam
[3]ICAR Krishi Vigyan Kendra, Thirupathisaram, Kanyakumari District- 629 901
Email: rajinimala@tnau.ac.in

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Abstract: Roving survey was conducted in different blocks of Tirunelveli and Tenkasi districts during *Pishanam* 2023-24 for the occurrence of major rice diseases *viz*., blast, bacterial leaf blight, false smut, sheath blight, brown spot and grain discoloration. Among the surveyed locations of Tirunelveli district, the maximum incidence of blast (20.69 PDI) and Sheath blight (19.56 PDI) diseases were recorded in Veerava Nallur and Karukuruchi villages of Cheran Mahadevi block respectively. The maximum incidence of Bacterial Leaf Blight (30.56 PDI), False smut (28.56 PDI) and brown spot (20.85 PDI) diseases were recorded in Ayan Singampatti, Mananallur and Kela Ermal puram villages of Ambasamudram block respectively. The maximum incidence of Grain discolouration (18.78 PDI) was recorded in Kalakudi village of Mannur block. Among the surveyed locations of Tenkasi district, the maximum incidence of blast disease (12.31 PDI) was recorded in Kidarangulam village of Alankulam block. The maximum incidence of Bacterial Leaf Blight (19.56 PDI), false smut (22.47 PDI), sheath blight (11.58 PDI), brown spot (19.75 PDI) and Grain discolouration (19.58 PDI) diseases were recorded in Kalitheerthan patti, Sambankulam, Anantha Perumal Nadanoor, Keezha Kadayam and Venkatampatti villages of Kadayam Block respectively.

Keywords: Rice, Bacterial leaf blight, Blast, Brown spot, False smut

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STATUS OF WILT DISEASE OF COTTON CAUSED BY *FUSARIUM OXYSPORUM* F. SP. *VASINFECTUM* (FOV)

Twinkle D. Manavadria[1]*, Prashant, B. Sandipan[2,], R. K. Patel, P. S. Patel, Pushpa Ruwali, Navya Sharma and Payal J. Kodavala

[1] Department of Plant Pathology, N. M. College of Agriculture, Navsari Agricultural University, (NAU), Navsari, Gujarat, India.
[2]Main Cotton Research Station (MCRS), Navsari Agricultural University (NAU), Surat 395 007 (Gujarat), India
Email:twinklemanavadariya25@gmail.com

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Abstract: Cotton (*Gossypium hirsutum* L.) is a major fiber crop that contributes significantly to global economic and social development. It is often referred to as "The White Gold" or "The King of Fibers". Survey was conducted in the cotton growing regions of Surat, Bharuch and Narmada districts of South Gujarat in the year 2023-2024 to know the presence of the *Fusarium oxysporum* f. sp. *vasinfectum* on cotton plants and to record the observations on per cent disease incidence (PDI). The maximum disease incidence was found in Bharuch district with 9.89 PDI while, the least disease incidence was found in Surat district with 4.33 PDI. However, the maximum disease incidence was observed in Ranipura village of Amod taluka of Bharuch district with 18.00 PDI while, no disease was observed in the Amkhuta village of Mangrol taluka and MCRS farm of Choryasi taluka of Surat district. At seedling stage, drooping of leaves and cortical decay of seedlings were observed. In case of young plants, leaves turned yellow followed by wrinkling and drying, loss of turgidity with brownish discoloration of stem near soil base, roots became soft and browning of vascular bundles was observed. The vascular discoloration of stem extended throughout the plant. When the roots of such infected plants were split opened and examined, the brownish black discoloration of vascular system was observed.

Keywords: Cotton, Survey, *Fusarium*, Intensity, Wilt disease

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BIORATIONAL MANAGEMENT OF FRUIT FLY ON SPONGE GOURD (*LUFFA CYLINDRICA*)

Satyam Dhanwe, G. P. Painkra*, P. K. Bhagat, K. L. Painkra, R.S. Sidar and Neelam Chouksey

IGKV, Section of Entomology, Raj Mohini Devi College of Agriculture and Research Station, Ambikapur- 497001 (C.G.) India
**IGKV, College of Agriculture and Research Station, Shankargarh-497118, Dist-Balrampur, Ramanuganj (C.G.) India*
Email: gppainkrarmd@gmail.com

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Abstract: The current research titled "Biorational management of fruit fly on sponge gourd (*Luffa cylindrica*)" was carried out at Raj Mohini Devi College of Agriculture and Research Station, Ajirma, Ambikapur (C.G.). The study tested six different bio-pesticides and chemical insecticides against fruit fly. Emamectin Benzoate 5% SG (1 gm/lit) was found to be the most effective, recording the fewest ovipositional punctures (1.01/fruit), the lowest number of maggots (9.23/fruit),and the least fruit infestation(17.97%),along with the highest marketable yield(212.76q/ha)and acost-benefit ratio of 3.05.This treatment showed similar results to Acetamiprid 20SP(2gm/lit).On the other hand, the control treatment had the highest ovipositional punctures(1.05/fruit),the highest number of maggots (9.36/fruit), the highest fruit infestation (18.51%), the lowest marketable yield (153.24 q/ha), and the lowest cost-benefit ratio (2.09) was recorded.

Keywords: Sponge gourd, Insect pest, Biorational, Fruit fly