

Arthropod Germplasm Information System (AGIS) in India

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Arthropods are significant components of diverse ecosystems and are the major players in functioning of ecosystem processes. They must be preserved because of their natural values but also because we require them for human survival. Thus, arthropods must become a main and essential part of the conservation strategy. Insect conservation aims at for saving both endangered species and ecosystem processes with a multitude of approaches. Germplasm is a term used to describe a collection of genetic resources for an organism. Arthropod germplasm is essential in agriculture. Accessibility to the germplasm information like location of availability and characteristics of the arthropod organisms is necessary for the researchers in the form of web based database. Hence, Arthropod Germplasm Information System (AGIS) – an online database has been developed in the country during 2014, for the storage of information about the live arthropod genetic resources maintained at different institutions in India. The exact aim of this AGIS database is to develop, maintain and exchange arthropod germplasm information. AGIS would furnish to the needs of the entomologists especially who working on agriculturally important insects. The website address for this resource is <https://databases.nbair.res.in/germplasm/index.php> and institutions can register their live arthropod germplasm accessions by accessing this link.

Key Words: Agriculture, Arthropod germplasm, Germplasm database, Insect genetic resources, Passport details

Introduction

Arthropods have to be preserved because we require them for human survival. Therefore, arthropods are essential part of the conservation strategy. Insect conservation aims at for saving both endangered species and ecosystem processes with a multitude of approaches (Kim, 1993). Germplasm is a term used to describe a collection of genetic resources for an organism. Arthropod germplasm is essential in agriculture. In India, ICAR-National Bureau of Agricultural Insect Resources (NBAIR), Bengaluru acts as a nodal organization for collection, characterization, documentation and conservation of insects and related arthropods for commercial and research purposes. NBAIR being the national repository for live arthropod germplasm collection and maintenance, the present database aims to promote the arthropod genetic resources of various categories like host insects, parasitoids, predators, detritivores insects, silkworm resources and veterinary pests, mites and spiders. Accessibility to the germplasm information like location of availability and characteristics of these arthropod organisms is necessary for the researchers in the form of web based database. Keeping these points in view, Arthropod Germplasm Information System

(AGIS)-an online software tool has been developed in the country during 2014, for the storage of information about the live arthropod genetic resources maintained at different institutions in India. The arthropod germplasm collections are unique because scientists maintain them by continuously rearing live specimens and they serve as genetic resources. The website address for this resource is <https://databases.nbair.res.in/germplasm/index.php>. The home page of the AGIS is depicted in Fig 1.

AGIS Key Elements

The AGIS contains the key elements such as Home, Germplasm Information, Germplasm Registration, Downloads, Contact Us, Admin Login and User Login. Germplasm Information option provide the passport information of the arthropod genetic resources submitted by different institutions in India. Presently, passport information is available in AGIS for silkworm genetic resources maintained at Central Sericultural Germplasm Resources Centre (CSGRC), Hosur, Tamil Nadu, Central Silk Technological Research Institute (CSTRI), Berhampore, West Bengal and Mysore, Karnataka; Central Tasar Research and Training Institute, Ranchi, Jharkhand. Apart from silkworm, AGIS contains

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Fig. 1. Home page of Arthropod Germplasm Information System

information on veterinary pests maintained in the entomology laboratory of ICAR-Indian Veterinary Research Institute (IVRI), Bareilly, UP and host insects, parasitoids, predators and detritivores insects, mites and spiders maintained at ICAR-National Bureau of Agricultural Insect Resources (NBAIR), Bengaluru through this online database tool. An Institute Accession Number and a National Accession Number are the unique identification numbers for each germplasm registered. The passport information for the silkworm germplasm includes voltinism, race name, donor, origin, class, parentage, egg color, yolk color, larval pattern, eye spot, crescent, star (Faint/Present/Absent), cocoon color and cocoon shape. Passport information for veterinary pests includes scientific name of the veterinary pest, systematic position, origin, common name of the veterinary pest, common name of the host animals and locality details. The passport information for the predatory insects maintained at ICAR-NBAIR includes systematic position, target pest details, host plant, locality details and their's utility for biocontrol. The passport information for parasitoids includes systematic position, target pest details, host plant, locality details and information on how they could be utilised for biological control of pests. The passport information of host insects includes systematic position, common name of the host insect, the stage of the insect that could be supplied, locality details, etc. The passport information of detritivores insect includes systematic position, etc. One can register their live

arthropod germplasm accessions by accessing the link <https://databases.nbair.res.in/germplasm/index.php>.

Conclusion

The exact aim of this AGIS database is to develop, maintain and exchange arthropod germplasm information. The AGIS gives provision for multi-user accessibility based on Client-Server technology with Add/update options and the server is located at ICAR-NBAIR, Bengaluru, India. The information on different groups of arthropod germplasm like Silkworm, Veterinary Pests, Host Insects, Predators, Parasitoids, Detritivores insects are being regularly updated into the online database AGIS by the entomologists from various institutions in India. Researchers from all over the world can browse into the website <https://databases.nbair.res.in/germplasm/index.php> and obtain information on the live arthropod germplasm accessions available in India. The AGIS – online tool is a ready reference for researchers and can also obtain the passport information on the arthropod germplasm culture maintained at different organisations.

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Reference

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