

SCIENTIFIC CORRESPONDENCE

Table 2. Date-wise number of broodstock imported by the Coastal Aquaculture Authority approved stakeholders

Date of import	Number of broodstock imported	Number of broodstock subjected to analysis*
18.07.09	220	15
20.07.09	500	15
23.07.09	275	15
01.08.09	275	15
04.08.09	404	15
14.08.09	220	15
19.08.09	560	15
28.08.09	550	15
13.09.09	50	15
20.09.09	280	15
04.10.09	230	15
09.10.09	222	15
30.10.09	210	15
05.11.09	600	15
10.11.09	262	15
17.11.09	400	15
20.11.09	550	15
26.11.09	262	15
30.11.09	550	15
06.01.10	560	15
15.01.10	1000	15
24.01.10	556	15
29.01.10	128	15
04.02.10	476	15
08.02.10	447	15
15.02.10	278	15
22.02.10	170	15
01.03.10	280	15
08.03.10	472	15
15.03.10	440	15
22.03.10	660	15
29.03.10	280	15
05.04.10	590	15
09.04.10	280	15

*According to the SOP of AQF, only 15 samples are to be analysed for pathogen screening, irrespective of the number of broodstock imported.

bands at 296 and/or 550 base pairs (bp) and 286 and/or 560 bp for WSSV and IHNV respectively, and at 325 bp for NHPB. In case of RNA viruses such as YHV, GAV, TSV and for IMNV, the band would appear at 277 and/or 777, 406 and/or 777, 284 and/or 476 and 255 and/or 510 bp respectively. The BP amplicon will be formed at 644 bp. All the samples tested so far were negative and showed only one band at 848 bp for WSSV, IHNV, NHPB and BP, which was a PCR product of the housekeeping gene (internal control). For YHV/GAV, TSV and IMNV the internal control was at 680 bp. The absence of positive gene amplicons in the samples screened strongly reveals that all the shrimp broodstock imported were free of the specific pathogens and hence can be safely used for production and further culture purpose.

The AQF provides a quarantine clearance certificate only to the broodstock consignments which are negative to the listed pathogens. When screened positive, the entire stock would be incinerated after confirmation of the result by Central Institute for Brackishwater Aquaculture and the referral laboratory at Aquaculture Pathology Laboratory, University of Arizona, USA.

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Digital database on ethno-medicinal plants of Western Ghats

About 70% of the Indian population depends on traditional medicine for primary health care, which includes both codified and non-codified systems¹. The non-codified system has no written texts as such and is passed verbally from generation to generation. During this process of transfer of knowledge, much of the information has been lost due to various reasons, like lack of interest in the younger generation, non-availability of raw drugs (medicinal plants), absence of

official recognition, policy and administrative support by governments at the state and national levels, etc.^{2,3}. There is an urgent need to preserve the remaining treasure of traditional medicine, which is also at the verge of extinction. Efforts are on in this direction since the last few decades to document this knowledge for future generations, further exploitation for human welfare and also avoid bio-piracy, as in the case of turmeric⁴ and basmati⁵. However, it is the need of the

hour to preserve data in digitalized form as databases, in this age of electronic communication, which has made the whole earth a global village. We have made an effort to preserve the knowledge in an electronic database on Ethno-Medicinal Plants of Western Ghats (EMPWG), one of the 34 global biodiversity hotspots⁶.

A multi-centric survey was conducted all along the Western Ghats by five centres, one each in Goa, Karnataka, Kerala,

Maharashtra and Tamil Nadu. Information from the local traditional practitioners was documented on medicinal plants, formulations and their utility using uniform data-collection format designed by the Indian Council of Medical Research, New Delhi. All the collected information was compiled and analysed by the Regional Medical Research Centre, Belgaum.

The database was developed using Swing (Java), version 1.5.0 and Microsoft Office Access. The database is a desktop application and its flow chart is given in Figure 1, which explains how the database can be used to retrieve information. The information is assorted in four main tabs, viz. plants, utility, distribution and custom utility. Details about the plants can be accessed either through botanical or vernacular names. Detailed information on general description, synonyms, vernacular names, distribution and occurrence, utility, chemical composition and pharmacology are listed along with references.

The EMPWG database includes a total of 500 medicinal plants with more than 11,000 vernacular names in seven languages, and about 600 formulations and practices for more than 200 disease treatments along with more than 800 photographs. The ethno-medicine reports are from 22 districts of five states. It is found that very few lower (non-

flowering) plants are reported for their medicinal properties, majority are higher (flowering) plants, both dicots (89%) and monocots (10%). Among the higher plants, members of the family Fabaceae top the list, with respect to maximum number of species (36) and maximum claims (170) for different diseases, followed by Euphorbiaceae (35 species, 127 claims), Lamiaceae (23 species, 102 claims), Asteraceae (23 species, 80 claims) and Piperaceae (5 species, 60 claims). Herbs were used more (38%) in the traditional medicinal practice in the Western Ghats, followed by trees (24%), shrubs (24%) and climbers (14%). Leaves were found to be more frequently used in the formulations for their medicinal value (760 claims). Maximum plant species and claims were documented for skin diseases (112), followed by snakebites (62), wounds (56), fever (55), cold (53), etc. A single drug therapy (63%) was observed to be dominantly in practice, when compared to formulations involving two (23%) or more ingredients.

The database is simple and has an user-friendly structure. The database will help in creating general awareness about traditional herbal medicine and medicinal plants along with promoting scientific temperament in the local community by disseminating information, and will also be useful to those interested in traditional medicine and medicinal plants.

The plants and formulations documented in the database help in protecting the diminishing wealth of herbal healing along with claims of the local community on Intellectual Property Right issues. It serves as an information bank for future research in herbal and traditional medicine.

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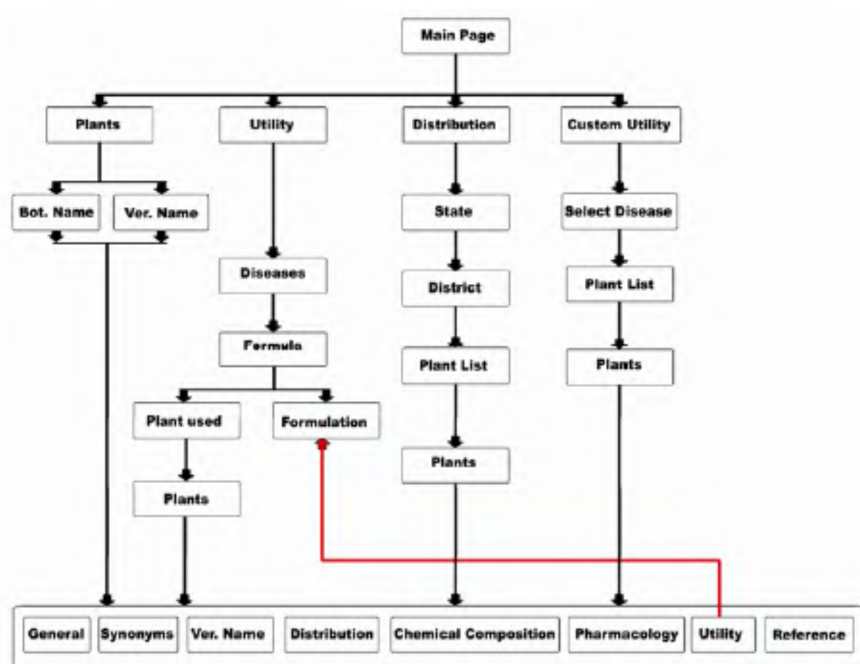


Figure 1. Flowchart of the ethno-medicinal plants database.

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