



Research Note

Design and Development of Web Based Information System for Value Added Fish By-products

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A web based information system on value added fish by-products has been designed and developed using hypertext markup language (HTML), hypertext preprocessor (PHP) and cascading style sheets (CSS) as a part of technology transfer and information dissemination through digital mode. The system provides information on series of value added fish by-products with a view to support the stakeholders for better utilization of fish processing discards, so that they can plan and venture into processing of value added fish by-products. The information system also provides information on inputs required for the development of different value added by-products along with stepwise method of preparation. The developed system on value added fish by-products can be accessed through internet from any arbitrary platforms.

Keywords: Information system, by-products, HTML, PHP, CSS

Introduction

The success of a technology or product depends on its efficient way of dissemination to the stakeholders through different modes. ICAR - Central Institute of Fisheries Technology (CIFT) has developed and optimized different types of value added by-products from fish processing discards. These products are having nutraceutical, agricultural, food, pharmaceutical and feed applications. Apart from these, the development of value added fish by-products is a novel approach for utilising fish

processing discards, which may otherwise cause environmental problems to terrestrial and aquatic habitats; and also results in underutilization of resources (Mathew, 2010). The conventional methods of transferring these technologies to the stakeholders are exhibitions, teaching, training and business incubation programmes. Since, the present world is living in a digital era; it is very important and highly essential to develop digital platforms for transferring or disseminating technologies to the stakeholders. The Government of India (GoI) encourages digital platforms through different schemes to educate the people on different aspects and it has got more relevance during the COVID-19 pandemic. It is learnt that web based information systems are one such digital platforms helpful for the organization to safely reach out the stakeholders in order to provide the required information. Joshy et al. (2018; 2020) developed web and android based information system on value added fish products to transfer the technologies in digital form to the stakeholders to support their business aspiration and livelihood. There were several information systems like expert system on wheat, expert system on seed spices etc. developed in the field of agriculture to support the farmers (<http://apps.iasri.res.in/wheat/>; <http://apps.iasri.res.in/exps/>). These types of web based applications are useful platforms to disseminate technologies and to enhance the knowledge level of stakeholders.

But, as such no web or mobile based information system on value added fish by-products has been developed to make it available to the stakeholders or entrepreneurs. With this background, this paper explains how the web based information system was designed, developed and integrated the information on value added fish by-products into it. The software provides information on series of value

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added fish by-products with product description, active inputs required for the product and method of preparation. The information system also provides an interactive platform where stakeholders can raise their queries and experts will respond to their queries in digital mode.

The architecture of the information system contains graphical interface home page, where introduction about the system is given, different types of value added fish by-products are listed out for the user to select and a contact form to raise any query (Fig. 1.). The graphical interface home page designed and developed using hypertext markup language (HTML), cascading style sheets (CSS) and bootstrap for responsive pages (Powel, 2017; Yehuda & Tomer, 1998). The contact form in the home page was developed using hypertext preprocessor (PHP) (Holzner, 2007).

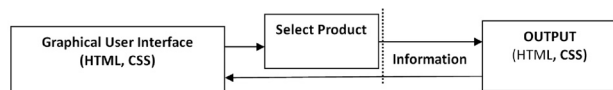


Fig. 1. Architecture of Information System

The hierarchical design structure of the developed information system follows waterfall model and it is depicted in Fig. 2. The information system mainly developed in two components; (i) design and development of information system using different computer languages and (ii) integration of information on different value added fish by-products to the system. This was carried out by identifying the list of potential value added fish by-products and collection of authentic information.

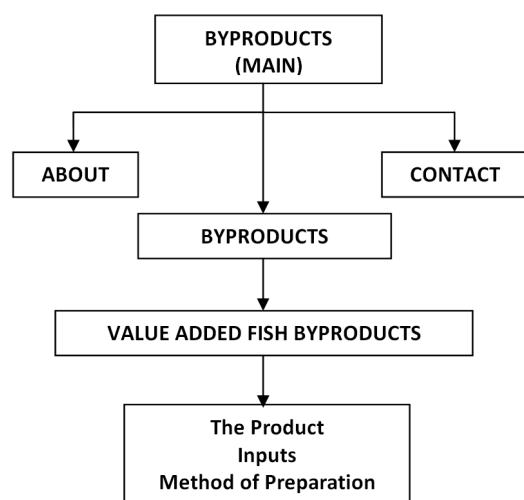


Fig. 2. Design of Information System

The homepage of the information system firstly provides an introduction about the information system as given in Fig. 3. The home page also contains the list of value added fish by-products with a hyperlink and a contact form with ask the expert@cift to raise any query.



Fig. 3. Home Page of the Information System

The information system provides information on series of fish by-products viz., chitin, chitosan, glucosamine hydrochloride, fish silage, fish calcium, fish protein hydrolysates, collagen, gelatin and cephalopods protein paste. Further, developer has the option to add any number of products to the system. The by-products listed out in the information system are given in Fig. 4.

Fish Byproducts

CHITIN	CHITOSAN	GLUCOSAMINE HYDROCHLORIDE
FISH SILAGE	FISH CALCIUM	FISH PROTEIN HYDROLYSATES
COLLAGEN	GELATIN	CEPHALOPODS PROTEIN PASTE

Fig. 4. List of value added fish by-products

The hyperlink on each product will be activated upon clicking and provides introduction about the particular product, information about active inputs required and stepwise process flow for the product preparation. For example, on clicking CHITIN gives introduction about chitin, information on inputs required for chitin production and stepwise procedure for chitin production (Fig. 5). To upscale the production of any product, the user can contact ICAR-CIFT, Cochin.

This would help the stakeholders or entrepreneurs to get the production procedure of different types of value added fish by-products after getting the know how through training programmes. It would definitely enhance their knowledge about the process with the help of internet oriented platform.

A web based information system on CIFT value added fish by-products has been designed and developed to disseminate the technologies to the entrepreneurs / stakeholders through digital plat-



Fig. 5. The product description in fish by-products

forms. Overall, the system intended to provide information to the end user on their fingertips irrespective of their geographical location with the help of Internet of Things (IoT) and progress towards GoI mission on digital India platform. The developed information system will be freely accessible to any user at any time to help them to plan and execute their product development and entrepreneurship programme.

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