

CRITERION III – RESEARCH, INNOVATIONS AND EXTENSION

3.3 Research Publications and Awards

3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the last five years

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Establishing a Remedy for Phenylketonuria Disease from Indian Ayurvedic Herbs

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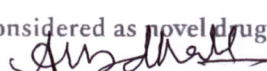
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Abstract

The phenylketonuria (PKU) disease is an inherited disorder that increases the levels of a substance called phenylalanine in the blood and if not treated, phenylalanine can build up to harmful levels in the body. People with this disorder can't break down the amino acid phenylalanine. This phenylalanine, then builds up in the blood and brain causing intellectual disability and other serious health problems. It is rare but a serious inherited disorder. The main objective of this study is to establish a remedy for the phenylketonuria disease (novel drug leads for phenylketonuria disease's receptors viz. ASCL1 gene (achaete-scute family bHLH transcription factor 1), GCH1 gene (GTP cyclohydrolase 1) and MAOB (Monoamine Oxidase B)) using phytochemicals from ayurvedic herbs. To achieve this objective we performed virtual screening with phytochemicals from ayurvedic herbs against the phenylketonuria disease's receptors followed by ADME studies on the phytochemicals selected by virtual screening. Based on the analysis of the results of virtual screening and subsequent ADMET studies on the phytochemicals it is seen that curcumin can be successfully considered as novel drug lead for phenylketonuria disease.

Keywords




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Note

Effect of dietary carbohydrate levels on the growth of fingerlings of Carnatic carp *Barbodes carnaticus* (Jerdon 1849)

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ABSTRACT

Fingerlings of *Barbodes carnaticus* (average size: 9.25 ± 0.43 cm; 7.39 ± 1.18 g) were reared for 60 days in aerated plastic tubs (40 l) providing 5 iso-nitrogenous diets formulated to contain crude NFE (nitrogen free extract) levels ranging from 35 to 50% using pure ingredients. The fish were fed *ad libitum* and were allowed to feed for 6 h and thereafter the unconsumed feeds were siphoned out. The following day, faecal matter was collected, dried, pooled and stored for proximate analysis. Water from each tub was replaced (50%) with freshwater every day after faecal matter collection. Proximate composition of feed and faecal matter was analysed. Crude fiber was used as the reference marker for dry matter, protein and fat digestibility determination. The growth parameters increased ($p < 0.05$) in *B. carnaticus* upto dietary NFE levels of 43.72%, beyond which a decrease was noticed. The food conversion ratio (FCR) and protein efficiency ratio (PER) were the best with the diet containing 43.72% NFE. Proximate composition of fish carcass revealed the highest protein and fat contents in those fed the 43.72% NFE diet. Dry matter and NFE digestibility increased with increasing dietary NFE level upto 43.72%, whereas protein digestibility showed a decreasing trend. The study revealed a dietary NFE requirement of around 44% for the fingerlings of *B. carnaticus*.

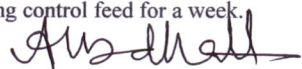
Keywords: *Barbodes carnaticus*, Carnatic carp, Carbohydrate, Digestibility

In aquaculture, feed accounts for almost 50% of the cost of production and the cost of protein source ingredients is much more than carbohydrate source (Kushwaha *et al.*, 2012). Being a cheap source of food energy, carbohydrates effectively reduce feed cost, though they are not well utilised by all fish (Shiau, 1997). The nutritional value of carbohydrates varies among fish; warm water fish are able to utilise much higher levels of dietary carbohydrate than cold water and marine fish. No dietary requirement for carbohydrate has been demonstrated in fish; however, if carbohydrates are not provided in the diet, other nutrients such as protein and lipids are catabolised for energy and to provide metabolic intermediates for the synthesis of other biologically important compounds. Thus, it is important to provide appropriate level of carbohydrate in the diets of cultured fish (Wilson, 1994). Herbivorous and omnivorous fish such as grass carp (*Ctenopharyngodon idella*) and gibel carp (*Carassius gibelio*) have been reported to use higher carbohydrate levels (45%) for optimal growth and have the ability to utilise carbohydrate as an energy source (Tian *et al.*, 2012). Protein sparing action of carbohydrate is well known in fishes (Habib *et al.*, 1994; Wilson, 1994; Keshavanath *et al.*, 2002; Stone, 2003; Krogdahl *et al.*, 2005; Cheng *et al.*, 2017).

Barbodes carnaticus (Jerdon 1849), commonly known as Carnatic carp is an endemic species of the Western Ghats of India. It serves as a food and game fish and feeds on leaves and seeds that fall into the water, as well as detritus. The species has been successfully bred and efforts are underway to induct the species into culture systems (Sridhar *et al.*, 2013; Basavaraja *et al.*, 2019). Introduction of a new species for culture requires information regarding its food, feeding habits and digestive physiology, which govern nutrient utilisation (Kushwaha *et al.*, 2012). Evaluation of maximum tolerable concentration of dietary carbohydrate of cultured species is desirable since it is the cheapest energy source (Lee and Pham, 2011). No information is available on the optimum dietary carbohydrate requirement of *B. carnaticus*. Hence, this study was undertaken using five isonitrogenous diets with varying nitrogen free extract (NFE) levels.

Healthy fingerlings of *B. carnaticus* ($n=150$) of average initial length 9.25 ± 0.43 cm and weight 7.39 ± 1.18 g, procured from the culture ponds of the Regional Research Centre of ICAR-Central Institute of Freshwater Aquaculture (ICAR-CIFA), Hesaraghatta, Bangalore, were distributed randomly into 15 aerated plastic tubs (40 l) at 10 nos. per tub. They were maintained providing control feed for a week.




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“Indian Epics re-visited: A Study of Select Indian Novels”

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Abstract

The Indian mind is always obsessed with the epics of their land. The Indian writers try to identify the happenings of the present with those told in the two great epics *Ramayana* and *Mahabharata*. In fact, they justify the actions of the present with those found in the epics. John Vickery’s assumption that myth is a “matrix out of which literature emerges both historically and psychologically” (Vickery 1966, ix) is being considered here in this paper. The matrix is being identified to have taken two different forms and it will be discussed with reference to select Indian novels in English. Firstly, as a complete re-narration of the classical epic, with the author naming his chosen mythological characters and settings according to the original ones and taking the postcolonial stance of questioning the role of the colonized or marginalized. In the second type, we have a juxtaposition of sections narrating a myth and the others concerned with the contemporary world wherein a part of the mythology is dealt with explicitly and it is given a contemporary setting. The authors have dramatized the novels in such a way so as to make the past a vital part of the present. However, a pattern could be seen to emerge. Several attitudes on the part of the writers can be discerned. The main contention is that there has been an attempt to re-write the past, especially the colonial past and deconstruct the colonial framework. Epics have largely contributed to the portrayal/interpretation of incidents in the novels; the postcolonial condition, an additional support in the process of interpretation. In the process, the primary characters of the epics are seen in a new light. The repressed characters in the myths have also been given a voice.

Key Words: Myth, Epics, Matrix, Re-narration, Postcolonial, Repressed characters.




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Original Research Article

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Characterization of Refined Rice Bran Wax: An Alternative Edible Coating

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ABSTRACT

Keywords

Edible coating; Rice
bran wax; Refining;
Value addition

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Edible wax coating is one of the method for enhancing the shelf life of fruits and vegetables, thereby post-harvest losses of these can also be reduced. India ranks first in the production of rice bran oil and large amount of wax available from the oil refineries. At present Indian scenario this wax is more used in pharmaceutical and cosmetics industries even though it is edible. Lack of proper refining method constraints its use in food application. In this present study refining of locally procured crude rice bran wax was done and its purity was checked by analyzing some physico chemical parameters. Variation in color, moisture content, melting point, acid value, iodine value and saponification value are observed as refining proceeds. The obtained results are accordance with previously reported values and similar to carnauba wax. The potential of crude wax in India can be wisely use for edible coating purposes which make value addition to the rice byproducts.

Introduction

India's diverse climate ensures the production of around 94 million metric tonnes of fruits and 182 million metric tonnes of vegetables and witness nearly 4.6-15.9% postharvest wastages of these perishables (NHB Statistics). Fruits and vegetables are perishables because of its higher moisture content. Constant loss of water occurs after their harvesting and eventually it leads to shriveling, poor texture and poor quality. Proper post-harvest treatments are necessary to minimize the water losses and to retain freshness of fruits and vegetables. The use of edible waxes can extend the shelf life of these perishables. Increasing demands of consumer

for higher quality food in combination with the environment need to reduce the packaging wastes have led to the increased innovative researches in edible coating (Del-Valle *et al.*, 2005). Rice bran wax is a hard yellowish to brownish wax obtained as a byproduct of dewaxing process in bran oil refining, composed of mixtures of fatty alcohol esters and fatty acids. It shows similar characteristics like carnauba wax and can serve as a substitute in fruits and vegetable coating (FDA § 172.890). Rice bran wax is having a broad range of application in cosmetics, pharmaceutical purposes, electric insulations, textiles, waterproofing apart from food (Sanghi and Tiwle, 2015). At present its application in food is less even though Food

Study on physicochemical, phytochemical, and antioxidant properties of selected traditional and white rice varieties

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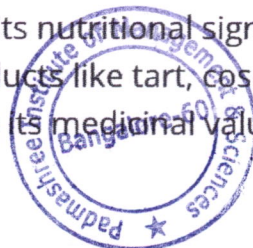
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Abstract

The present study has been undertaken to investigate the physico-chemical, cooking qualities followed by proximate composition, phytochemical, and antioxidant properties of selected traditional and white rice varieties using standard procedures. It was observed that Basmati rice showed the highest length, breadth, and *L/B* ratio compared to the traditional varieties. The traditional rice varieties especially Navara was found to be superior in terms of protein ($9.61 \pm 0.1\%$) with comparatively low carbohydrates than that of white rice varieties. White rice varieties showed better cooking properties with maximum water absorption index and water solubility index than the traditional rice varieties due to more starch content. The microstructure of traditional rice varieties was appeared to be pigmented due to the presence of anthocyanin with surface pores. The studies revealed that among traditional rice varieties Mapillai Samba has got the highest total phenols (290.70 ± 4.39 mg) and antioxidant activity ($72.96 \pm 3.34\%$) followed by anthocyanins and flavonoids.

Practical Applications

Traditional rice varieties were found to be rich in antioxidant, phytochemical, and nutritional properties than white rice. Mapillai Samba and Navara varieties were consumed in many parts of India for its nutritional significance. Traditional rice varieties can be efficiently processed into products like tart, cosmetics, red koji, colored noodles, cake, and preparation of yeast due to its medicinal values to cure stomach problems,



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RESURGENCE OF FAITH – NARRATIVES FROM MYTHOLOGICAL WORKS

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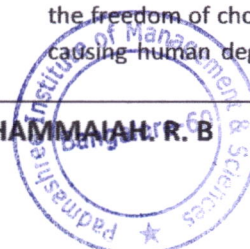
ABSTRACT

As societies and cultures undergo several transformations, several interpretations of myths emerge. Sometimes, the hidden meanings in the mythical stories are brought out in the open through these interpretations, and sometimes, new knowledge regarding a particular society or culture is highlighted. This process of reclaiming and recreating myths happens at the cost of demythification. Such demythification takes place especially when the mythical situations and characters are placed in a modern context to highlight the contemporary human experience. Though the myths are far displaced from the contemporary times, they are found to have a cultural relevance and a social significance. The main contention of this article is that myths are given a new role to suit the needs of the contemporary times. They are given a new life by the writers thus ensuring that they are not easily relegated to the position of a relic. At the same time, the myths are found to live precisely because they help each generation to understand itself better. It has been said that a real book reads us, and myths as books whether they repeat, adapt or transform the original myths, are seen to provide us greater clarity about our own situation. This article bases itself on the assumption that any creative writing, including those based on myths, is an examination and evaluation of ideas current at that time, e.g. the idea of liberty in a time of struggle for freedom, the idea of feminism or postcolonialism or globalization in the present times or the pursuit of one's own identity in the present chaos-ridden society.

Values are emotional rules by which a Nation governs itself. They summarise the accumulated time-tested wisdom by which society organizes and disciplines itself. Values are precious reminders and guidelines that individuals obey to bring order and meaning into personal lives, without values, individuals, societies and Nations would perish and disintegrate. Since units of society are individual human beings, the need for the cultivation and application of human values in life for the happiness

of human beings and harmony in society is Paramount. The practical core of scriptural teachings is the re- education of the intellect in human values and returning of the mind to live them in day to day life. Values are not relics of the past, but keys to the future.

Yet, repeated human failure to learn and live up to values, is due to the unintelligent exercise of the freedom of choice, resulting in utter selfishness causing human degradation. Hence, a continuous



**“REVELATIONS OF BHIMA’S SENSIBILITY AND SENSITIVITY IN
M.T. VASUDEVAN NAIR’S RANDAMOOZHAM”****DR. THAMMAIAH. R. B.**Associate Professor and Head, Dept. of English
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Kommaghatta, Bengaluru-60**ABSTRACT**

Myths address the ideological concerns of a particular age/time. There are several Indian novels that are based on myth or exploit myth in one way or the other. Sometimes, the whole function of the myth might undergo a change. An episode of the Mahabharata that involves the character of Bhima and the incidents in his life is re-presented in M.T. Vasudevan Nair’s Malayalam novel Randamoozham, with its English translation rendered by P.K.Ravindranath and titled Second Turn. The plot and the characters of the novel correspond to those in the Mahabharata, but the point of view is Bhima’s. Bhima is the central figure in this novel. In Randamoozham, the author takes the character of Bhima from the Mahabharata and gives him a voice. He expresses strong disapproval of several incidents and deeds that happened in the Mahabharata. The novelist redefines Bhima’s character in such a way that if Bhima had had the first turn, the Mahabharata would have been much different from what it is. In Randamoozham, Bhima interrogates certain decisions taken by his own brothers and also Kunti which is not found in the epic. His sensibility is that of a mature individual who evaluates the pros and cons of the situation in detail before taking a decision. He also questions the morality of the society of his time especially in the case of sharing Draupadi and the court scene when Draupadi was dragged by his cousin and all her husbands looked on helplessly at the happening. Bhima, though he wanted to help Draupadi, could not do so because he did not have the permission of his elder brother. We could say Nair evaluates the mythical characters by modern yardsticks, and finds them deficient.

Key Words: Myths, Re-presentation, Sensibility, Bhima

Indian novelists have successfully adapted Western forms of fabulist narratives and a postmodernist mode with local legends and popular fables as a means of mythicising contemporary reality. Indian myths have been found to have the power to treat and heal as well as interrogate man-woman relationships and relationships between the individual and society. Therefore, Indian novelists have used the myths as a therapeutic tool because they often point to solutions to the different contemporary problems and situations. Hindu mythology, despite being one of the most ancient, is a living mythology because it contains in essence a most vital property of the myth—“great antiquity combined with perpetual contemporaneity” (Sankaran 2). The chief storehouses of the Hindu myths are the *Ramayana*, the *Mahabharata*, and the *Puranas*. These myths are about freedom and choice. Desire is not

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