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News from the Research Front

Isolation and characterization of pharmacologically active lead compounds from marine Red algae, *Amphiroa anceps* (Lamarck) Decaisne

Traditional medicines have been the starting point for the discovery of many important modern drugs. This has led to the screening of natural products and medicinal plants for pharmacologically active substances all over the world. In Indian ayurvedic medicine, marine algal extracts have been used for the treatment of various human ailments such as liver diseases, heart ailments, cancer, inflammatory disorders, etc. Oflate, isolation and characterization of bioactive compounds from marine sources has become one of the potential emerging fields in pharmacological research for the production of components of human healthcare importance. An attempt has been made in the Biochemistry & Nutrition Division of CIFT, Cochin to study the biochemical



Fig.1. Red algae (*A. anceps*)

केन्द्रीय मत्स्यकी प्रौद्योगिकी संस्थान

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resistance in the fishery environment of Kerala. This result will be useful to the public health department in choosing

the antimicrobial of choice for treating patient with Methicillin-resistant Staphylococci infection.

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Microbial quality of sun dried and solar dried *Parapenaeopsis stylifera*

Drying is the most economical traditional method of preserving food products. As there are problems associated with traditional sun drying, solar drying is gaining importance to dry food commodity hygienically. *Parapenaeopsis stylifera*, which is locally known as *Kiddi shrimp* in Gujarat, is landed abundantly, which is processed and marketed in fresh and frozen forms. It is one of the potential shrimp species for drying which fetches very good price in both domestic and international market. The present study deals with evaluating the microbial quality of solar dried *Parapenaeopsis stylifera* in comparison with the traditional sun dried product.

The fresh *Kiddi shrimp* were collected from Bhidia landing site, Veraval, Gujarat. The collected shrimp was cleaned, washed, deveined and mixed with salt (not

exceeding 7% by weight). It was then sun dried hygienically by keeping on drying racks under direct sun light for four days and in solar dryer at 60 °C for 10-12 hrs for achieving the final moisture content of 18-20%. The sun and solar dried prawns were packed in polythene bags and stored at room temperature (RT) for two months. The microbial quality of the fresh and dried prawn was assessed with the standard protocol of BAM. Enumeration of bacterial load was done using Plate Count Agar (PCA), Total Enterobacteriaceae on Violet Red Bile Glucose Agar and fecal Streptococci on Kennel Faecal Streptococcal Agar by pour plating (1.0 ml). Enumeration of *E. coli* (0.5 ml) and Staphylococci (0.4, 0.3 and 0.3 ml) were done on Tergitol-7 and Baird Parker Agar by spread plating method. Total Fungal Count (TFC) was done on Rose Bengal



Fresh and cleaned *Kiddi shrimp, Parapenaeopsis stylifera*

Microbial quality of sun and solar dried prawn pulp

Type of drying	TVC (cfu. g ⁻¹)	Total Entero bacteriaceae (cfu. g ⁻¹)	Staphylo coccocal count (cfu. g ⁻¹)	<i>E. coli</i> (cfu. g ⁻¹)	Fecal Streptococcal (cfu. g ⁻¹)	Total fungal count (cfu. g ⁻¹)
Fresh	2.4 x 10 ⁵	Absent	Absent	Absent	Absent	Absent
Sun Dried	1.0 x 10 ²	Absent	Absent	Absent	Absent	Absent
Solar Dried	1.0 x 10 ²	Absent	Absent	Absent	Absent	Absent
1st Month of storage						
Sun Dried	2.6 x 10 ²	Absent	Absent	Absent	Absent	1.65 x 10 ¹
Solar Dried	1.29 x 10 ²	Absent	Absent	Absent	Absent	1.4 x 10 ¹
2nd Month of storage						
Sun Dried	2.0 x 10 ³	Absent	Absent	Absent	Absent	1.0 x 10 ²
Solar Dried	1.25 x 10 ³	Absent	Absent	Absent	Absent	2.1 x 10 ²



Solar and sun dried Kiddi shrimp, *Parapenaeopsis stylifera*

Chloramphenicol Agar and sensitivity of the fungal isolates to NaCl was done by inoculating fungal colonies on Potato Dextrose Agar (0, 10, 14 and 18%).

Solar dried shrimps were sensorily more appealing as compared to traditional sun dried samples. There was a substantial reduction in the microbial load of dried shrimp samples as compared to the fresh samples. The total viable count (TVC) in fresh, sun dried and solar dried prawn was 2.4×10^5 , 1.0×10^2 and 1.0×10^2 , respectively. The TVC counts for sun and solar dried prawn samples were 2.6×10^2 and 1.29×10^2 and 2.0×10^3 and 1.25×10^3 after 1st and

2nd month of storage, respectively. The TFC was 1.65×10^1 and 1.4×10^1 and 1.0×10^2 and 2.1×10^2 for the 1st and 2nd month of storage, respectively. A slight increase in the levels of TVC and TFC was observed over a period of two months storage at room temperature but the counts were well within the permitted level. The solar dried prawn had better microbial quality as compared to the sun dried samples and could be attributed to faster drying rate when compared to traditional sun drying. The open exposure to environment in sun dried sample as well as atmospheric relative humidity also contributes to higher load in sun dried samples.

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Solar drying: An alternate drying method for quality improvement of squid rings

Squid is an important marine resource belonging to the group of cephalopods. They form one of the most important commercial fishery commodities in Gujarat coast, due to its abundant availability and for its nutritional and ecological significance. Indian squid, *Loligo duvauceli* contributes a major share to the cephalopod landings in India. An estimated squid landing in India during 2013 was 100,014 tonne (CMFRI, 2013). Fresh squid is highly perishable and the time to spoilage depends mainly on species, handling, processing and storage temperature. In India, squids are normally processed in frozen form. Although there exists improved freezing and cold storage facilities for providing fresh squid either in chilled or frozen form, a variety of dried and seasoned squid products are very popular in Japan and other south-east Asian countries. Sizeable quantity of squid is processed into these dried products annually in these countries. Traditionally, these

are processed manually and sun dried.

Drying is a traditional method which has been used since long for fish preservation in many parts of the world. Drying helps in reducing the moisture content of the food to a level at which microbial spoilage and deterioration reactions are minimized, which allows safe storage over an extended period of time. Traditionally, drying is carried out in open air under direct sunlight, using the energy of the sun to evaporate the water and air currents to carry away the vapour. The major problems associated with open sun drying method are insect infestations, poor handling and improper processing which lead to contamination and spoilage. As a result, not only does the final product lack quality, but has to be sold at the lowest price in the market. To improve the quality of the dried products, various types of drying techniques have been developed. CIFT has designed different types of solar dryers varying from very

