

REPORT

On

ISOLATION AND BIOCHEMICAL CHARACTERIZATION OF POTENTIAL AMYLOLYTIC AND ALCOHOL PRODUCING YEAST STRAINS FROM YEAST CAKE (EPOPE) USED IN THE PREPARATION OF PO:RO (SAI-MOD), A TRADITIONAL ALCOHOLIC RICE BEVERAGE OF MISING TRIBE OF ASSAM, INDIA

[Under UGC-Minor Research Project F. No. : 32-617/2006(SR)]



Submitted by

D. KARDONG
Principal Investigator

DEPARTMENT OF LIFE SCIENCES
DIBRUGARH UNIVERSITY
DIBRUGARH, ASSAM

Annexure -III

UNIVERSITY GRANTS COMMISSION BAHADUR SHAH ZAFAR MARG NEW DELHI – 110 002

Final Report of the work done on the Minor Research Project. (Report to be submitted within 6 weeks after completion of each year)

1. Project report No. 1st /2nd /3rd /final : Final report
2. UGC Reference No. : F.No. 32-617/2006(SR)
3. Period of report: from : 1st April 2007 to 31st March 2009
4. Title of research project : *Isolation and biochemical characterization of potential amylolytic and alcohol producing yeast strains from yeast cake (Epope) used in the preparation of Po:ro (Sai-mod), a traditional alcoholic rice beverage of Mising tribe of Assam, India.*
5. (a) Name of the Principal Investigator : DEVID KARDONG
(b) Deptt. And University/College where work has progressed : Department of Life Sciences, Dibrugarh University, Dibrugarh (Assam)
6. Effective date of starting of the project : 1st April 2007
7. Grant approved and expenditure incurred during the period of the report :
 - (a) Total amount approved : Rs.1,00,000/- (received Rs. 85,000/-)
 - (b) Total expenditure : Rs. 84,658/- (Certified copy of the account and the utilization certificate enclosed)

Report of the work done :

- (i) **Brief objectives of the project** : Enclosed along with the Technical Report.
- (ii) **Work done so far and results achieved and publications, if any, resulting from the work (Give details of the papers and names of the journals in which it has been published) :**
Paper writing work is going on which will be communicated very soon to the journals that deals with concerned subject.

Seminars attended :

- i) Poster presentation entitled *Biochemical and microbial analysis of Po:ro among an indigenous alcoholic rice beverages used by Mising tribe of Assam, North East India* in National Seminar on “Exploration, Conservation and Utilization of Plant resources with special reference to North-east India” organized by North-east Biotechnological Consortium on 18-19th December 2007 at Indian Institute of Entrepreneurship, Guwahati.
- ii) Paper presented: Paper entitled “*Studies on conservation strategies and Industrial prospects of “Epop”, the Starter culture used in fermentation of alcoholic rice beverage by Mising Tribe of Assam, India*” was presented in National Seminar on “Environmental Issues in North-east India: Past, present and Challenges Ahead” organized by Gargaon College, Simaluguri on 10-11th May 2008.

Publication : Preparing for publication.

(iii) **Has the progress been according to original plan of work and towards achieving the objective?**

Yes; Entire work was carried out according to the original work plan and the objectives were successfully achieved.

(iv) **Please indicate the difficulties, if any, experienced in implementing the Project:**

Project was completed smoothly.

- (v) **If project has not been completed, please indicate the approximate time by which it is likely to be completed. A summary of the work done for the period (Annual basis) may please be sent to the Commission on a separate sheet.**

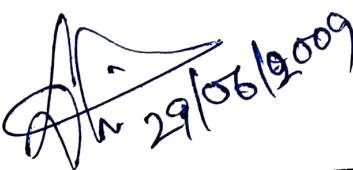
Summary of the work done is enclosed as Annexure -I.


- (vi) **If the project has been completed, please enclose a summary of the findings of the study. Two bound copies of the final report of work done may also be sent to the Commission:**

Two bound copies of the final report enclosed.

- (vii) **Any other information which would help in evaluation of work done on the project. At the completion of the project, the first report should indicate the output, such as**

- (a) **Manpower trained** : The project has benefited me through acquiring expertise on certain aspects of microbial studies.
- (b) **Ph. D. awarded** : The present work being a part of my research for Ph.D. degree, the findings of this work will be incorporated in my Ph.D. thesis.
- (c) **Publication of results** : Results of the work has been compiled for publication in scientific journals.
- (d) **Other impact, if any** : Present work has enriched my confidence to carry forward the work to achieve certain goals on this aspect.


SIGNATURE OF THE PRINCIPAL
INVESTIGATOR


REGISTRAR/PRINCIPAL
Dibrugarh University
Dibrugarh

Annexure - I

SUMMARY OF THE PROJECT

The Saimod (Po:ro) is a very popular home made mild alcoholic rice beverage unique to the Mising tribe of Assam. The preparation of saimod is a herbal based primitive type crude technology involving large number of diverse type of microorganisms and medicinal plants used as ingredients for preparation of starter culture which in turn is the main recipe that ferments the cooked rice into the alcoholic beverage. Three samples of starter culture from different places were collected and used for isolation of most potential amylolytic and alcohol producing microbial strains. Altogether seven pure isolates both bacteria and fungus (yeast) having significant amount of amylolytic property and also six different isolates having alcohol fermenting property were isolated from the starter culture. Partial characterization of highly potential amylolytic isolates (strains) namely AY-3 (amy-3), AY-1(19), AY-4(Big cell) and the alcohol fermenting isolate (strains) such as FY-10 was carried out. Physiological characters of various amylolytic and alcohol producing isolates indicates that AY-3 (amy-3), AY-4(Big cell) along with the FY-10 would likely to form the most suitable consortium for fermentation of Saimod (Po:ro) which is a solid state fermentation. Thus studies on the partial characterization of individual isolates would help in designing the process parameters and selecting the desired strains for development of microbial consortium. The physico-chemical parameters of the finished product of saimod also indicate its importance as nutrient supplement for the villagers who use it as refreshing drink.