

A

Project Report on –
Extraction and isolation of beta glucan from
Oats, Barley and wheat

SUBMITTED BY

Miss Gayatri Raghunath Kulkarni

SUBMITTED TO

VIVEKANAND COLLEGE, KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

FOR PARTIAL FULFILMENT OF BACHELOR OF SCIENCE IN
BIOTECHNOLOGY

THIS YEAR

2022-2023

UNDER GUIDANANCE OF,

Miss Vaishnavi kankekar

Assistant professor, Department of BIOTECHNOLOGY



"Education for Knowledge, Science and Culture"

- Dr Bapuji Salunkhe



Vivekanand College (Autonomous),
Kolhapur

Department of Biotechnology

Certificate

This is certified that Mr. / Ms. Gayatri RAGHUNATH KULKARNI

Roll No 9321 has satisfactorily completed his/her Project work on the topic Extraction of beta glucan from oats ,wheat and barley, as a part of syllabus prescribed by Board of Studies, Department of Biotechnology, Vivekanand College (Autonomous), Kolhapur for B.Sc. III (Entire) Biotechnology and this report represents his/her bonafied work in year 2022- 2023.

Date:

Place: Kolhapur

Pamphale
Project Guide



[Signature]
28/5/2023
Examiner

[Signature]
28/5/2023
Head
Department of Biotechnology (Entire)
Vivekanand College, Kolhapur (Autonomous)
Head

Acknowledgment

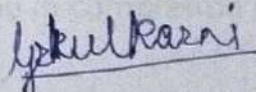
DECLARATION

I hereby declare that the project work entitled "EXTRACTION AND ISOLATION OF BETA GLUCAN FROM OATS, BARELY AND WHEAT" submitted to Vivekanand college Kolhapur for award of the degree of BACHELOR OF SCIENCE IN BIOTECHNOLOGY is result of bonafied work carried out by me under the guidance of Asst/Prof Miss vaishnavi kankekar .

I further declare that the results presented here have not been the basis for the reward of any other degree.

PLACE: Kolhapur

Date:-



Miss Gayatri Raghunath Kulkarni

Aim and objectives

Aim: To extract Beta glucan from oats, wheat and barley

Objectives :

To extract beta glucan from oats, wheat and barley by using alkaline extraction method

To perform qualitative test to estimate extraction of beta glucan

Materials and method

MATERIALS :

Oats, wheat, barley, distilled water , filter paper , dialysis bag

Glassware: Funnel, beakers, glass rod, measuring cylinder, flask, test tube.

Chemical: DNSA (dinitro salicylic acid), NaOH solution , orthophosphoric acid, alcohol, amylase enzyme

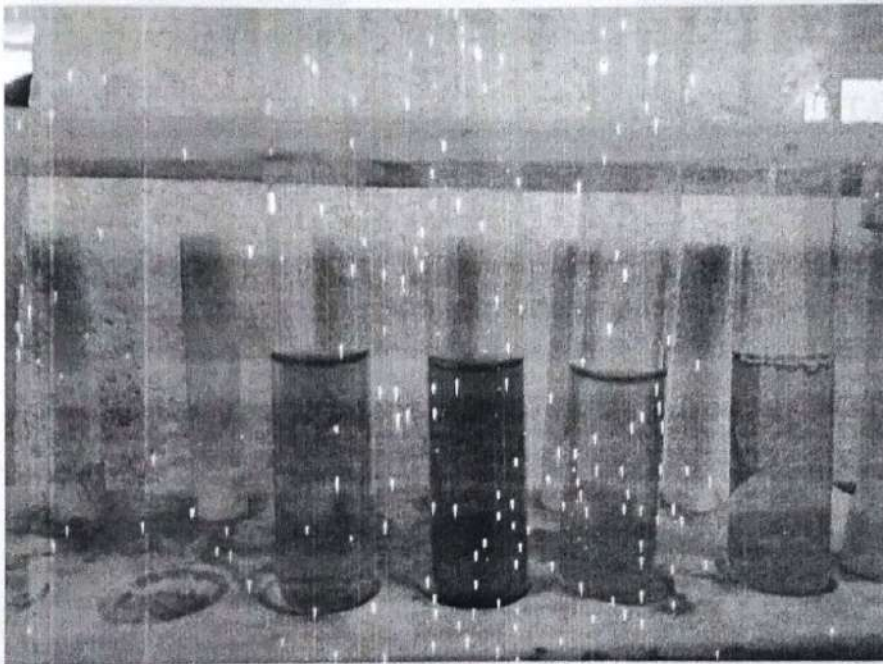
Equipment: Dialysis unit, Magnetic stirrer ph meter

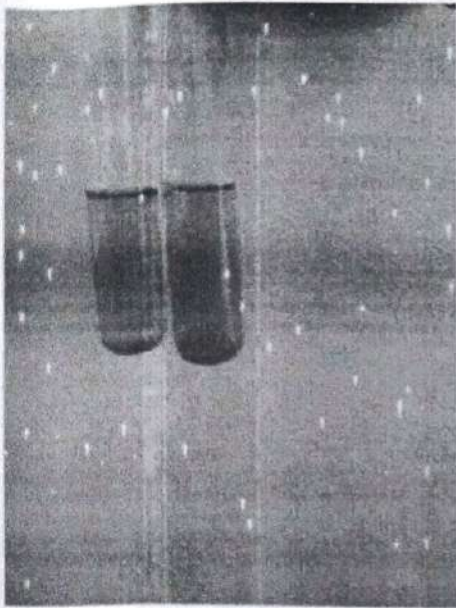
METHOD:

1. Collection of Grains: Selection of grain is first step of extraction. Grain should be selected properly as per their beta glucan content. After selection of grains they should milled to prepare flour required for further steps.
2. After collection of flour of oats, wheat and barley extraction of beta glucan is extracted by alkaline extraction method
3. For alkaline method we need the ratio of 20:1 or 10:1 of flour and Naoh solution (1% naoh should be prepared).
4. Take 3 flask and add 30 grams of oats wheat and barley individually in each flask.
5. Prepare 250 ml of 1% of naoh solution for each flask.
6. Add the flours in flask containing naoh solution and Labelled them with marker and keep it for overnight extraction (first extraction)
7. After overnight extraction filter the solution and transfer the suspension 1 in new flask and keep in fridge and repeat the extraction process again

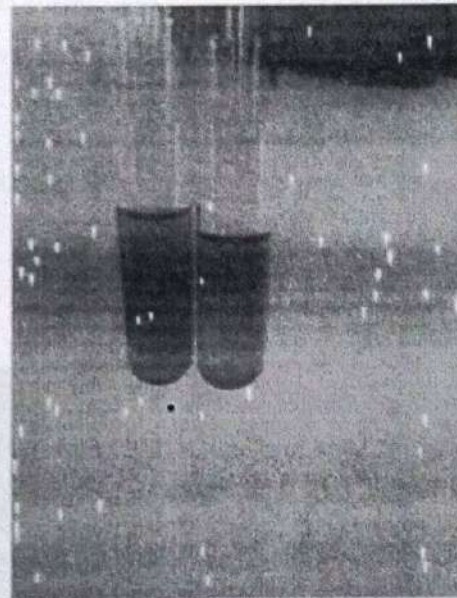
RESULT

Estimation of beta glucan by DNSA method



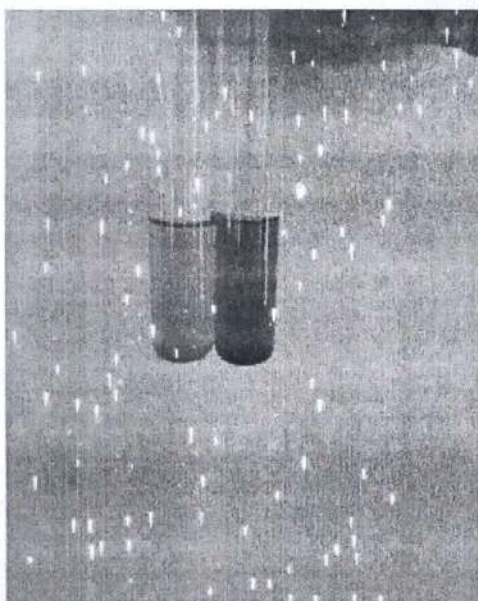


ESTIMATION OF BETA GLUCAN
FROM OATS



ESTIMATION OF BETA GLUCAN
FROM WHEAT

Estimation of betaglucan from barley



Conclusion :

Thus we conclude that the extraction of beta glucan is successfully done by alkaline extraction method and estimated by qualitative test

APPENDIX