

The University of Queensland - IIT Delhi Academy of Research Joint PhD Project

PROJECT TITLE	CONTROLLING THE CRYSTALLISATION IN CLARIFIED BUTTER (GHEE) AND ITS FUNCTIONALISATION FOR HEALTH BENEFITS
PROJECT CODE	UQIDAR 00112
PROJECT DESCRIPTION	Clarified butter or ghee as popularly known in India is a very common household dairy product used for various culinary, religious and medicinal purpose. There is a high consumption of ghee among urban population in India. Ghee is implicated with coronary Heart Disease (CHD), one of the leading causes of mortality in India, due to its content of saturated fatty acids and cholesterol. This proposed study aims to investigate the advanced knowledge in crystallisation to control the crystal structure in butterfat using different food ingredients that will help to reduce the oxidation of fat and cholesterol at high temperature and storage, and cholesterol adsorption in the body without comprising its inherent quality. Further, the added ingredient may also benefit with other life-style related diseases like obesity, type-2 diabetes etc. This study will also include the effectiveness of the functionalised product (such as stability, digestibility) in important product applications where ghee is used. The developed technology and formulations have potential for commercialisation. The protection of joint IP will be discussed when the student will commence the project.
PROJECT OUTCOMES	<ul style="list-style-type: none"> • The project aims to incorporate food ingredients that would enable control of the crystal structure in butterfat leading to less oxidation of fat and cholesterol during storage in the resulting clarified butter. • The efficacy of the reduced cholesterol clarified butter will be confirmed through incorporation of the product to different food products where it is normally used. • The digestibility study will confirm the reduction of potential absorption of cholesterol from the clarified butter.
ADVISORY TEAM	<p>Dr Sangeeta Prakash https://researchers.uq.edu.au/researcher/1129 s.prakash@uq.edu.au School of Agriculture and Food Sciences The University of Queensland</p> <p>Associate Professor Jatindra Sahu https://scholar.google.com/citations?user=Yv9OtRYAAAAJ&hl=en jksahu@iitd.ac.in Department of Rural Development and Technology Indian Institute of Technology Delhi</p>
TYPE OF STUDENT DISCIPLINE BACKGROUND OF STUDENT	<p>Applications are open to a students who meet eligibility criteria.</p> <p>Ideally, this project requires students with a background in food science.</p>
IDEAL CANDIDATE	<p>Essential capabilities:</p> <ul style="list-style-type: none"> • Food Science with a good understanding of dairy science

APPLICATION
PROCESS

Desirable capabilities:

- Understanding the working principle of Differential Scanning Calorimeter (DSC), X-ray diffractometry, Gas chromatography and other associated instruments required for studying crystallisation.

Expected qualifications (courses, degrees, etc):

- Honours or Master's degree in Food Science/Food Engineering/Food Science & Technology/Chemical Engineering/Physical Chemistry.

Apply online by the due date: <https://www.uqidar.org/students/how-to-apply/>