

DAIRY TECHNOLOGY

Dairy Technology Department

The Dairy Technology department has been pioneer in Dairy Technology Education in India. The department has made significant achievements in pivotal research areas. In the last 50 years, work has been carried out on standardizing technology for development of value-added dairy products, developing new, natural flavourings for ice cream, evaluating packaging conditions and monitoring storage changes in dairy products. The dairy technology department has focused research on (i) value addition to dairy products through use of membrane processed dairy ingredients, and (ii) developing Mozzarella cheese analogue based on casein(s) and vegetable/milk fat. Research articles based on the outcome of the research work has been published in scientific national and international journals of repute. The effort put by SMC College of Dairy Science has resulted in earning of 279 Masters Degree and 60 Doctoral degree in disciplines related to Dairy Technology, Dairy Engineering, Dairy Microbiology and Dairy Chemistry. The research work has given the College, national and international recognition. This could be seen from the invitations received by the staff as lead speaker from organizers of several Conferences/Seminars.

The department regularly conducts the 'National Dairy Products Judging Contest'. The department has been hosting this unique event since last eleven years with the aim to provide necessary exposure in sensory evaluation of dairy products. The department has conducted eight 'National Dairy and Food Quiz Contest', the only of its kind in India, organized by SMC College of Dairy Science and its Alumni Association.

One year Inplant training at Vidya Dairy handled by Dairy Technology Department

Dr. Jarita Mallik, Professor is the current Training-In charge for the course 'Dairy Plant Operations and Management-I and II', which is a one year In plant training held at Vidya Dairy, Anand which involves 12 modules held during the 7th and 8th semesters of B.Tech. (Dairy Technology) course. Monthly interaction and feed-back sessions are conducted by the Dairy Technology staff at the dairy plant. The Theory as well as Viva-voce during final examination is handled by the Dairy Technology Department.

Placement and Counselling Cell (Undergraduate and Post Graduate students)

The Counselling and Placement cell of the college is located in the department which is responsible for placement of students. The department takes care of the placement of UG and PG students in dairy/food plants in India and abroad. Till now, the college has achieved nearly 100% success in placing the students after completion of their degree courses. Dr. S. V. Pinto, Professor & Head, Dairy Technology department has been handling the Counselling and

Placement Cell of the college since more than a decade. Dr. Hiral Modha and Prof. Chetan Dharaiya have been assisting Dr. S. V. Pinto for the ‘campus recruitment’ drive, with inputs from the Principal and Dean, SMC College of Dairy Science, Anand.

Development of E-Course for B. Tech. (Dairy Technology)

A project on “Development of e-courses for B. Tech. (Dairy Technology) degree programme” under the National Agricultural Innovation Project (NAIP) has been successfully handled by the department during 2009-2012. The Dairy Technology staff were involved in contributing to the following B. Tech. (Dairy Tech.) courses:

1. Ice cream and Frozen Desserts
2. Condensed and Dried Milks
3. Food Technology –I
4. Food Technology – II
5. Judging of Dairy Products
6. Packaging of Dairy Products

Major Research Areas...

- Traditional Indian dairy products such as Bhapa dahi, Cham cham, Rava burfi, Basundi, Shrikhand, etc.
- Functional dairy products
- Fermented dairy products
- Ice cream and frozen desserts - new flavourings, cereal based ice creams, etc.
- Fat-rich dairy products such as fat spreads
- Mozzarella cheese, Cheddar cheese, Swiss cheese, Processed Cream cheese and cheese analogues
- Packaging and shelf life of dairy products
- Utilization of whey as beverages – lactose hydrolysis, flavoured drinks

Publications and Research outcome (2010 to 2015)

Sr. No.	Publications	Dairy Technology		Total
		National	International	
Publications				
1	Books/Book Chapters	5	-	5
2	Compendium/Catalogue	1	-	1

3	Review Articles	12	1	13
4	Research Papers	15	3	18
5	Brief Communications/Posters/Abstracts	22	-	22
6	Technical Articles	36	-	36
Awards				
7	Awards	5	-	5

Transfer of Technology

Name of Technology	Name of the Dairy
Technology for manufacture of Dietetic frozen dessert	PATNA DAIRY, Bihar
Technology for manufacture of Herbal ice cream (Ginger)	PATNA DAIRY, Bihar

The consultancy charges received from Patna Dairy, Bihar for the Transfer of technology for production of Dietetic ice-cream and Herbal ice creams is being utilized for the development of College and University. The consultancy took place in April, 2008. The name of College appears in the lid of food package.



Technologies developed...(2013-16)

Year 2013-14

- Process standardization for manufacture of Cham-cham
- Standardization of technological parameters for paneer burfi
- Assessing the suitability of sweet cream buttermilk in preparation of Burfi
- Exploring finger millet as a valued ingredient in ice cream
- Standardization of method for preparation of reduced-fat paneer using whey protein concentrate and selected emulsifiers
- Evaluating the effect of partial homogenization on the quality of Mozzarella cheese
- Choco-cheese : a novel flavoring in ice cream
- Value addition to Mozzarella cheese analogue through incorporation of whey protein and vitamin A
- Shelf life study of Peda employing different packaging techniques
- Shelf life study of Halvasan employing different packages

- Process standardization for manufacture of Thabdi Peda

Year 2014-15

- Development of technology for manufacture of Ragi ice cream
- Manufacture of iron fortified Probiotic fermented milk
- Manufacture of iron fortified Kulfi

Year 2015-16

- Evaluating the effect of partial homogenization of milk on the quality of Mozzarella cheese
- Formulation of ready mix carrot halwa from dried carrot shreds
- Use of Basil (Tulsi leaves) as flavouring ingredient in the manufacture of ice cream
- Utilization of whey protein concentrate in fermented milk drink.

Training Programmes for Dairy Plant Personnel organized by Vidya Dairy in association with Dairy Technology Faculty

Sr. No.	Topic of the Programme	Duration
1	Dairy Technology for Non-Dairy Technologists	6 days
2	Technological and Engineering Aspects of Food Industry	11 days
3	Chemical and Microbiological Analysis of Milk and Milk Products	6 days
4	Laboratory Practices in Dairy and Food Plants	6 days
5	Dairy Plant Operations and Maintenance	11 days
6	Technology of Mozzarella Cheese	3 days
7	Technology of Cheddar Cheese	3 days
8	Technology of Processed Cheese	3 days

Books

1. “Quest for Knowledge” (2001) A compilation of lectures delivered by faculty members at various dairy plants of Gujarat. Published by Alumni Association of SMC College of Dairy Science, Anand.
2. Upadhyay KG (2003) Essentials of Cheese making. Published by Alumni Association, SMC College of Dairy Science, AAU, Anand.
3. Upadhyay KG (2003) Basics of Mozzarella Cheese making. Published by Vidya Dairy, AAU, Anand.
4. Pandya AJ and Khan MMH (2006) Buffalo Milk - Production and utilization of buffalo milk. In “Milk of non bovine mammals.” Editors: Dr. Young W. Park and Dr. George F.W. Haenlein, USA. Blackwell publishers, USA.
5. Patel HG (2011) Technology of Condensed & Dried Milks. Published by Alumni Association, SMC College of Dairy Science, AAU, Anand.

Compendiums

1. Drying of Milk and Milk Products - A compendium of lectures delivered at Refresher Course on ‘Drying of Milk and Milk Products’ held during 5-6-89 to 15-6-89 at Sheth M.C. College of Dairy Science, Anand.
2. Technology of Fat-Rich Dairy Products - A compendium of lectures delivered at Refresher Course on ‘Technology of Fat Rich Dairy Products’ held during 16-6-90 to 30-6-90 at Sheth M.C. College of Dairy Science, Anand.
3. Recent Advances in Cheese Technology - A compendium of lectures delivered at Summer Institute on ‘Recent Advances in Cheese Technology’ held during 10-6-96 to 29-6-96 at Sheth M.C College of Dairy Science, Anand.
4. Cheese making - From Craft to Science - A compendium of lectures delivered at Refresher Course on ‘Cheese Technology’ held during 18-11-96 to 30-11-96 at Sheth M.C. College of Dairy Science, Anand.

Catalogues

Under the ICAR Network project on “Research and Development Support for Process Upgradation of Indigenous Milk Products for Industrial Application” the department brought out four illustrated catalogues as below.

1. Characteristics of *Shrikhand* manufactured by traditional technology in Maharashtra and Gujarat - A catalogue.
2. Characterization of *Peda* manufactured by traditional technology in Maharashtra and Gujarat - A catalogue.

3. Development of technology for manufacturing of *Basundi* - A catalogue.
4. Characterization of *Thabdi* from Saurashtra region of Gujarat- A catalogue.

Research Findings of Dairy Technology Department

No.	Product / Process	Number	No.	Product / Process	Number
1	Goat milk	1	16	Fat spread	1
2	Kankrej cow milk	4	17	Butter oil	1
3	Jersey cow milk	1	18	Cheddar cheese	6
4	Camel milk	1	19	Mozzarella cheese	12
5	Buffalo milk	2	20	Swiss cheese	1
6	Lactometer	3	21	Processed cheese spread	4
7	Quality of milk	6	22	Dried cheese	1
8	Dahi	6	23	<i>Chhana / Rasogolla</i>	6
9	Lassi / Chhash	6	24	Khoa / Khoa based sweets	6
10	Yoghurt	1	25	Casein	1
11	Shrikhand	12	26	Whey	3
12	Basundi	3	27	Lactose	2
13	Ice cream/Frozen Dessert	9	28	Neera	1
14	Ghee	4	29	Cleaning solution for UF Plant	1
15	Butter	1			
16	Gulabjamun	2			