LABORATORY MANUAL ON FRESH MEAT TECHNOLOGY

Livestock Products Technology is an integrated field comprising of food chemistry, biochemistry, microbiology and allied subjects that deals with all aspects right from farm to plate. The manual on Fresh Meat Technology is designed to fulfil the requirements of postgraduate students and Ph.D. scholars of Livestock Products Technology and other allied fields as per ICAR course curriculi. This manual has been prepared to meet the needs of students and research scholars dealing with fresh meat and would be a useful guide to them. The authors have made sincere efforts to produce compiled and complete technical information related to various techniques used for assessment of fresh meat quality in this manual. The chapters have been simplified and streamlined with updated technologies to make it simpler for the students/researchers involved. The manual covers various analytical techniques related to meat microbiology, physico-chemical quality evaluation of fresh meat, proximate analysis, muscle fibre characteristics, cutting and fabrication of meat, sensory evaluation of fresh meat etc.

Dr. Serlene Tomar Assistant Professor

Dr. Somesh Kumar Meshram Assistant Professor

Department of Livestock Products Technology
College of Veterinary Science and Animal Husbandry, Rewa
N.D.V.S.U., Jabalpur



SATISH SERIAL PUBLISHING HOUSE

403, Express Tower, Commercial Complex, Azadpur, Delhi - 110033 (India) Phone : 011-27672852, Fax : 91-11-27672046 E-mail : info@satishserial.com, hkjain1975@yahoo.com



Jacket design

LABORATORY MANUAL ON FRESH

MEAT TECHNOLOGY

LABORATORY MANUAL ON FRESH MEAT TECHNOLOGY



SERLENE TOMAR
SOMESH KUMAR MESHRAM





COLLEGE OF AVIAN SCIENCES & MANAGEMENT KVASU CAMPUS, THIRUVAZHAMKUNNU

Acc. No23/6	Call No
	CHILLY Consesses and the conse

This book should be returned on or before the date last given below.



Laboratory Manual

on

Fresh Meat Technology

(LPT - 601)

Compiled By:

Dr. Serlene Tomar

Assistant Professor

and

Dr. Somesh Kumar Meshram

Assistant Professor

Department of Livestock Products Technology College of Veterinary Science and Animal Husbandry, Rewa N.D.V.S.U., Jabalpur



SATISH SERIAL PUBLISHING HOUSE

403, Express Tower, Commercial Complex Azadpur, Delhi-110033 (India) Phone: 011-27672852, Fax: 91-11-27672046 e-mail: info@satishserial.com, hkjain1975@yahoo.com Website: www.satishserial.com

Published by:

SATISH SERIAL PUBLISHING HOUSE

403, Express Tower, Commercial Complex, Azadpur, Delhi-110033 (INDIA) Phone: 011-27672852 Fax: 91-11-27672046

E-mail: info@satishserial.com, hkjain1975@yahoo.com

© Publisher

ISBN: 978-93-90660-16-2 E-ISBN: 978-93-90660-24-7

© 2022. All rights reserved, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the publisher and also the copyright, rights of the printing, publishing, e-book of this edition and subsequent editions will vest with the publisher. All Computer floppies, CD's, e-book and in any other form relating to this book will be exclusive property of the publisher.

This book contains information obtained from authentic and highly regarded sources. Reasonable efforts have been made to publish reliable data and information, but the publisher cannot assume responsibility for the validity of all materials or the consequences of their use. The publisher have attempted to trace and acknowledge the copyright holders of all material reproduced in this publication and apologize to copyright holders if permission and acknowledgements to publish in this form have not been obtained. If any copyright material has not been acknowledged please write and let us know so that we may rectify it.

Composed, Designed & Printed in India

About the Authors

Dr. Serlene Tomar graduated from the College of Veterinary Science & Animal Husbandry, MHOW, JNKVV, Jabalpur in the year 2008 and did her post-graduation in the discipline of Livestock Products Technology, from College of Veterinary Science, GADVASU, Ludhiana in the year 2010. She obtained Ph.D. from Indian Veterinary

Research Institute, Bareilly as an in-service candidate in 2018. She is currently working as Assistant Professor in the department of Livestock Products Technology, College of Veterinary Science, Rewa and has 10 years experience in teaching undergraduate and post-graduate courses and research in the field of livestock products. She has published various research and review articles in reputed journals, book chapters and a, number of extension articles and many abstracts in national and international level conferences. She has conducted trainings for farmers and entrepreneurs and has also been instrumental in providing experiential training to B.V.Sc. students in value addition of milk and meat. She is also a lifetime member of Indian Meat Science Association, Association of Meat Scientists and Technologists. Association of Animal Scientists and Indian Association for Women Veterinarians.

Dr. Somesh Kumar Meshram graduated (B.V.Sc. & A.M.) from College of Veterinary Science and Animal Husbandry, Mhow (2010) and did his M.V.Sc. (2012) and in-service Ph.D. (2019) majoring in Livestock Products Technology from IVRI, Izatnagar. He joined as Assistant Professor in College of

Veterinary Science and Animal Husbandry, Rewa (M.P.) in 2012. Dr. Meshram is engaged in teaching and research on Livestock Products Technology since 9 years. Dr. Meshram has many publications including 20 research papers, 6 book chapters and several popular articles and many abstracts in scientific symposium and conferences. He has got best research paper presentation award and best scientist award too. He is a lifetime member of Indian Meat Science Association, Indian Association of Veterinary Public Health Specialists, Indian Poultry Science Association and Dairy Technology Society of India.

DC.				
Preface				
,				_

Department of Livestock Products Technology basically deals with processing, packaging and quality assurance of livestock products. Livestock products include products prepared from milk, meat, eggs, and wool. Livestock Products Technology provides fundamental knowledge of Milk and Milk Products Technology, Abattoir Practices and Animal By-products Technology, Meat Science, Wool Science, etc. Meat Science is one of the major subjects, where Fresh Meat Technology mainly informs about quality of fresh meat. Main objective of fresh meat technology is to impart knowledge about history, current status of meat industry, muscle composition, functions and sensory quality of meat and to educate on factors influencing quality of meat and nutritive value.

This manual is based on common techniques used for fundamental research work on fresh meat. It is felt that the students should be provided with a practical manual containing illustrations and details to know the subject as well as to have hands on experience. The chapters in this manual have been simplified and modernized with updated technology to reflect the current practice and procedures in fresh meat technology to help the students to learn complicated areas easily.

Authors

Contents_

Abo	out the Authors	τ
Prej	face	vi
1.	Microbial Assessment of Meat	1
2.	Estimation of pH	9
3.	Estimation of Titrable Acidity	13
4.	Estimaion of Water Holding Capacity	15
5.	Estimation of Extract Release Volume	19
6.	Estimation of Tyrosine Value	21
7.	Estimation of Thiobarbituric Acid Value	25
8.	Estimation of Shear Force Value	31
9.	Instrumental Texture Profile	35
10.	Instrumental Colour Analysis	39
11.	Estimation of Glycogen	43
12.	Estimation of R Value	47
13.	Estimaton of Myoglobin	49
14.	Proximate Analysis of Meat	53
15.	Estimation of Drip Loss	69
16.	Determination of Sarcomere Length	73
17.	Estimation of Muscle Fibre Diameter	77
18.	Estimation of Myofibrillar Fragmentation Index	79
19.	Meat Cutting and Fabrication	83
20.	Determination of Sensory Quality of Fresh Meat	97