

# Milllets

## Reservoir of Nutrients



**Kavita Kumari**  
**Smita Kumari**

**Kripa Drishti Publications, Pune.**

# **Milletts:**

## **Reservoir of Nutrients**

### **Editors**

**Dr. Kavita Kumari**

Assistant Professor,  
Dept. of Home Science,  
Magadh Mahila College Patna University,  
Patna, Bihar.

**Dr. Smita Kumari**

Assistant Professor,  
PG Department of Home Science,  
Magadh University, BodhGaya, Bihar.

**Kripa-Drishti Publications, Pune.**

Book Title: **Millets: Reservoir of Nutrients**

Edited By: **Dr. Kavita Kumari, Dr. Smita Kumari**

**Price: ₹499**

1<sup>st</sup> Edition

ISBN: **978-81-969534-6-1**



Published: **March 2024**

**Publisher:**



**Kripa-Drishti Publications**

A/ 503, Poorva Height, SNO 148/1A/1/1A,  
Sus Road, Pashan- 411021, Pune, Maharashtra, India.

Mob: +91-8007068686

Email: [editor@kdpublications.in](mailto:editor@kdpublications.in)

Web: <https://www.kdpublications.in>

© **Copyright Dr. Kavita Kumari, Dr. Smita Kumari**

All Rights Reserved. No part of this publication can be stored in any retrieval system or reproduced in any form or by any means without the prior written permission of the publisher. Any person who does any unauthorized act in relation to this publication may be liable to criminal prosecution and civil claims for damages. [The responsibility for the facts stated, conclusions reached, etc., is entirely that of the author. The publisher is not responsible for them, whatsoever.]

## **PREFACE**

The basis of our life is "Tamaso Ma Jyotirgamaya" which tells us that we move from darkness to light and with this light the darkness in the entire creation disappears when the rays of the sun illuminate the earth. The basis of our life is the energy of the Sun, and this energy is stored in our food and agricultural products.

Cereals are food agricultural products, which are the biggest source of energy for us. According to Atharvaveda, food is the basis of life of all living beings. Without grains a creature cannot survive. Among grains, 'coarse grain' is an important grain which has a very notable place in our lives. Coarse grains are also known as 'Shri Anna' and 'Millets'.

India celebrated 2018 as the 'National Year of Millets' to create greater awareness about unparalleled attributes of millets. Further, India advocated for declaration of 2023 as "International year of Millets" which brought millets into mainstream grains. Undoubtedly millets are reservoir of nutrients and strong profile with numerous health benefits. They are healthy not only for human being but also for our agriculture and overall environment. Every possible effort is being made to popularize millets so that they can be adopted by majority of households. Being educationist and researcher, this is our small effort to highlight several dimensions of millets. It has been tried to cover many aspects such as nutritional importance, health benefits, medicinal values of millets and role of agro based industries in promotion of millets. This book combines information on some nutritious, healthy and easy preparations so that inclusion of millets in daily diet can be increased at large scale. It also explains the role of home makers in popularizing millets at household level.

Thus, this book describes various dimensions of millets and their emerging importance with respect to nutrition, health, processing industries and food security.

## **Acknowledgement**

This edited book is a compilation of chapters contributed by authors from different disciplines and covers various dimensions of millets starting from production to consumption. Millets are storehouse of nutrients with magical health benefits. Many initiatives have been taken to popularize millets and efforts are being made to enhance adoption level of millets at large scale.

We are grateful to the concerned authors who enriched this book with their knowledge and experience. We extend our heartfelt gratitude to the publisher and the entire team for being supportive and their technical assistance in bringing out this book.

**Kavita Kumari**

**Smita Kumari**

# CONTENT

<b>1. Role of Home Makers in Popularizing Millets at Household Level - <i>Dr. Kavita Kumari, Ms. Nidhi Singh</i>.....</b>	<b>1</b>
1.1 Introduction:.....	2
1.2 Needs to Promote Millets: .....	4
1.3 Role of Home Makers in Promotion of Millets: .....	5
1.4 Preparations from Millets: .....	6
1.5 Conclusion: .....	10
1.6 References:.....	10
<b>2. Millets: A Boon for Management of Non-Communicable Diseases - <i>Dr. Smita Kumari</i>.....</b>	<b>12</b>
2.1 Introduction:.....	13
2.2 Biological Activity of Millets: .....	16
2.3 References:.....	20
<b>3. Medicinal and Nutritional Values of Millets: A Review - <i>Dr. Pragati</i> .....</b>	<b>23</b>
3.1 Introduction:.....	23
3.2 Major and Minor Millets:.....	23
3.3 The Nutritional Compositions of Millets:.....	24
3.4 Medicinal Value of Millets: A Review:.....	27
3.5 Conclusion: .....	28
3.6 References:.....	28
<b>4. Millets: A Wonder Food for Nutritional &amp; Health Challenges - <i>Dr. Bandana Singh</i>.....</b>	<b>30</b>
4.1 Introduction:.....	30
4.2 Impact of Millets on Human Health:.....	32
4.3 Conclusion: .....	37
4.4 References:.....	37
<b>5. Millets: Grains for Good Nutrition and Health - <i>Dr. Kumkum Kumari</i>.....</b>	<b>38</b>
5.1 Introduction:.....	38
5.2 Millets with Their Important Features:.....	39
5.3 Overall Nutritional Value and Health Benefits of Millets:.....	41
5.4 Summary:.....	42
5.5 References:.....	43

<b>6. Status and Prospects of Value Addition of Millet - Dr. Gitanjali Chaudhary, Dr. Neelam Kumari, Deepak Kumar .....</b>	<b>45</b>
6.1 Introduction: .....	46
6.2 Millet Production in India: .....	47
6.3 Processing of Millets for Preparation of Value-Added Products: .....	48
6.3.1 Future Aspects of Value Addition of Millets: .....	49
6.3.2 Challenges During Value Addition in Preparing Millets-Based Products: .....	53
6.4 References: .....	54
<b>7. Millets: The Eco-Friendly Crops - Dr. Indu .....</b>	<b>55</b>
7.1 Introduction: .....	55
7.2 Drought Resistance: .....	57
7.3 Low Resource Input: .....	58
7.4 Biodiversity Support: .....	59
7.5 Adaptability: .....	61
7.6 Reduced Greenhouse Gas Emissions: .....	63
7.7 Nutrient-Rich and Health Benefits: .....	64
7.8 Soil Conservation: .....	66
7.9 Crop Rotation and Pest Management: .....	68
7.10 Small Farm-Friendly: .....	70
7.11 Conclusion: .....	70
7.12 References: .....	71
<b>8. Millets: Boon for Life - Dr. Sarita Srivastava .....</b>	<b>72</b>
8.1 Introduction: .....	72
8.2 Nutritional Features of Coarse Grains/Millets/Shri Anna: .....	73
8.3 Conclusions: .....	76
8.4 References: .....	76
<b>9. Processing Technologies for Millets - Dr. Jyoti Pandey.....</b>	<b>77</b>
9.1 Millets Can Be Processed to Maintain Beneficial Characteristics: .....	79
9.1.1 Advantages of Millets Processing: .....	80
9.1.2 Primary Processing Methods: .....	81
9.1.3 Secondary Processing of Millets: .....	83
9.2 References: .....	86
<b>10. Millets' Recipes (Sorghum/Jowar) - Mridula Kumari .....</b>	<b>88</b>
10.1 Jwar Khichadi: .....	88
10.2 Jwar Idali: .....	89
10.3 Bajra Khichadi: .....	90
10.4 Bajara Roti: .....	91

10.5 Ragi Chilla: .....	92
10.6 Ragi Laddu:.....	93
10.7 Katuki Halwa: .....	94
10.8 Katuki Puri:.....	95
10.9 China Veg Rice: .....	96
10.10 Instant Madha (China) Dahi:.....	97
<b>11. Government Policies to Increase Millet Production and Consumption - Kumari Varsha, Kumari Sunita, Chaudhary Rimjhim .....</b>	<b>98</b>
11.1 Introduction:.....	98
11.2 Policy Initiatives by The Indian Government: .....	99
11.3 Recent Initiatives:.....	102
11.4 Policy Measures for Promoting Millet Farming in India:.....	105
11.5 References:.....	106
<b>12. Millets as Eco Friendly Crops - Neeta Chaudhari .....</b>	<b>108</b>
12.1 Introduction:.....	108
12.1.1 Nutritional and Health Benefits of Millet Consumption: .....	109
12.1.2 Millet Production in the World:.....	109
12.2 Millets are Considered Eco-Friendly Crops for Several Reasons:.....	109
12.3 Environmental Benefits of Millets: .....	110
12.4 Positive Impact of Environmental Benefits of Millets: .....	111
12.5 References:.....	112



## ABOUT THE EDITORS



**Dr. Kavita Kumari** is presently working in capacity of Assistant Professor in Deptt. of home science, Magadh Mahila College, Patna university, Patna, Bihar. She pursued her B.Sc. in Home Science and M.Sc. in Home Science Extension Education from Central University, Rajendra Agricultural University Pusa, Samastipur, Bihar. She qualified UGC NET and ICAR NET and hold degree of Bachelor in Education. Her areas of interest are nutrition and extension education. She is very keen to pursue studies related to women and children having relevance in present scenario. She has written many chapters in edited books and

published articles in UGC CARE listed and peer reviewed journals. She has worked as a resource person in a food processing training program organized by MSME, Patna. She was a member of board of studies committees, CBCS, Deptt. of Home Science, Patna University. Presently she is doing a project work funded by R&D Cell, Patna University, Patna. Her sincerity and punctuality for the profession are the things which make her a distinguished personality. The aim of editing this book is to spread knowledge and popularize millets at all level. Being an educationist, she has tried to cover several dimensions of millets so that population can get adequate knowledge about nutritional values and health benefits of millets. The book also contains chapter on easy and nutritious millets' recipes. Certainly this will helpful in popularizing millets and accelerate adoption level of millets among the population.



**Dr. Smita Kumari** former Head, Department of H.Sc RMW College Nawada is presently involved in research activities at PG department of H.Sc Magadh University BodhGaya having 3 research scholar and around 20 Postgraduate students for preparing dissertation in various fields of nutrition for developing new India. In her academic career she has got opportunity to be **All India Topper** in ICAR Combined Entrance Exam for M.Sc. She has earned her B.Sc and M.Sc degree from Rajendra Agriculture University Pusa and Awarded **University Gold Medal** in M.Sc (food and nutrition). She has cleared **UGC** as well as **ICAR NET**.

She is highly devoted in research work related to therapeutic nutrition, **dietary fibre** and **non communicable diseases**. She also has experience of working at Administrative positions like Coordinator of Research and Development Cell, Joint Coordinator of NAAC, and many more at her college level. She has published around 10 research article in peer reviewed and CARE listed journals, 2 book chapters in ISBN edited books and also presented around 12 papers in National and International Conference and Seminar. She is very dynamic in nature and regularly organising and participating in conferences and workshop related to NEP 2020, Curriculum Framework and other Academic and Research activities. She has work experience of more than 10 years in her subject expertise i.e nutrition expert in various organization like UNICEF, ICDS and other Health Care Institutions. She is also an expert reviewer for Journal of repute.



**KRIPA DRISHTI  
PUBLICATIONS**

**Kripa-Drishti Publications**

A-503 Poorva Heights, Pashan-Sus Road, Near Sai Chowk,  
Pune – 411021, Maharashtra, India.

Mob: +91 8007068686

Email: editor@kdpublications.in

Web: <https://www.kdpublications.in>

Price: ₹ 499

ISBN: 978-81-969534-6-1



9 788196 953461