

# Contents

<b>1</b>	<b>Introduction and Background</b>	<b>1</b>
	References.	4
<b>2</b>	<b>Rice Demands: A Brief Description.</b>	<b>7</b>
2.1	Rice Production	9
	References.	10
<b>3</b>	<b>Production of Rice By-products.</b>	<b>13</b>
3.1	Rice Processing	14
3.2	Processing Treatments Affect the Phytochemical Contents of Rice	16
3.2.1	Physical Treatment.	17
3.2.2	Chemical Treatment.	21
3.3	Rice By-products	24
3.3.1	Rice Bran	24
3.3.2	Rice Germ	26
3.3.3	Rice Straw	26
3.3.4	Rice Husk.	27
3.3.5	Broken Rice	29
3.3.6	Brewers' Rice.	29
	References.	30
<b>4</b>	<b>Phytonutrients and Antioxidant Properties of Rice By-products</b>	<b>41</b>
4.1	Vitamin E	41
4.2	Gamma-oryzanol	47
4.3	$\gamma$ -aminobutyric Acid.	49
4.4	Phytic Acid.	51
4.5	Antioxidant Activity and Phenolic Compounds.	53
4.6	Other Potential Component in Rice By-products	57
4.6.1	Dietary Fiber	57
	References.	60

<b>5</b>	<b>Potential Health Benefits of Rice By-products</b> .....	69
5.1	Antiobesity Activity .....	69
5.2	Chemopreventive Effect .....	71
5.3	Cholesterol-Lowering Activity .....	79
5.4	Hypoglycemic Effect .....	84
5.5	Other Related Health Benefits .....	87
5.5.1	Neurodegenerative Diseases .....	87
5.5.2	Osteoporosis .....	89
5.5.3	Arthritis .....	91
	References .....	93
<b>6</b>	<b>Application in Food Products</b> .....	103
	References .....	112
<b>7</b>	<b>Summary and Future Prospects</b> .....	117
	References .....	121
	<b>Conclusion</b> .....	123
	<b>Index</b> .....	125