

## Technology Details

**Date: 11-10-2019**

<b>1</b>	Title of Technology (Product/Process/Design/Equipment)	<b>Enzymatic Degumming of Rice Bran Oil</b>
<b>2</b>	IPR Status <ul style="list-style-type: none"> <li>• Patent/Copyright/Trademark</li> <li>• Secured in India/Abroad</li> </ul> IPR Details	<b>The process is well protected with patents</b> [Indian Patent No. 202379 (2006); US Patent No. 7,494,676 (2009), Vietnam Patent No. 10008605 (2010); China Patent No. ZL03826393.9-356076 (2007); Indonesia Patent No. IDP0033123 (2013)].
<b>3</b>	Application/Uses/Problem being addressed	<b>Rice bran oil industry used to incur huge losses because of the inefficient chemical and physical refining processes. The eco-friendly enzymatic degumming technology developed by CSIR-IICT resulted in a paradigm shift for refining rice bran oil with higher yields and retaining most of its nutrients.</b>
<b>4</b>	Salient Technical Features including  Competing Features	<b>The enzymatic degumming technology has several advantages over the traditional degumming processes like less <i>consumption of water</i> (about 40-50% less water compared to other degumming methods), <i>less effluents</i>; <i>more oil recovery</i> (0.6 to 1.5% more oil recovery results in case of physical refinery and 2 to 3 folds more recovery in case of chemical refinery) and more fatty acid (0.3 to 0.6% additional fatty acid is recovered). The cost of the process is almost same compared to the traditional one.</b>
<b>5</b>	Level/ Scale of Development (Please mention TRL rating as per attached guideline)	<b>50 tons per day scale (Commercial Scale)</b>
<b>6</b>	Environmental Considerations, if any	<b>Traditional chemical and physical refining methodologies require the usage of phosphoric acid, high dosages of alkali and sulphuric acids. By employing enzymatic degumming process use of the above corrosive and hazardous chemicals can be avoided completely.</b>  <b>The enzymatic degumming technology consumes about 40-50% less water and generates significantly less effluents compared</b>

		<b>to other degumming methods</b>
<b>7</b>	Status of Commercialization	<b>Transferred to 27 Clients</b>
<b>8</b>	Major Raw Materials to be Utilized	<b>Crude Rice Bran Oil</b>
<b>9</b>	Major Plant Equipment and Machinery Required	<b>Common machineries used for vegetable oil refining, high shear mixer</b>
<b>10</b>	Techno-Economics	<p><b>Commercially viable. A detailed techno-economic report was prepared by ASCI, Hyderabad and available with CSIR.</b></p> <p><b>High quality rice bran oil produced using enzymatic degumming process will have high impact on health care of Indian population as it has hypocholesterolemic activity and lowers LDL and triglycerides remarkably and increases HDL. Tocopherols and tocotrienols present in rice bran oil possess antioxidant activity and act as free radical scavengers.</b></p> <p><b>The enzymatic degumming technology developed by CSIR-IICT resulted in 1-1.5% extra recovery of oil. This extra oil recovery naturally helps the country in saving the foreign exchange for importing vegetable oils.</b></p>
<b>11</b>	Technology Package	<b>Available</b>