01.	Experiment No. and Title	:	Development and quality evaluation of carrot powder based pasta (20.5.3.5)
02.	Budget Head	:	12935
03.	Collaborative department, if any	:	-
04.	Background information	:	Pasta is a staple food made from unleavened dough which is stretched, extruded, or rolled flat and cut into one of a variety of shapes by using extrusion technology and usually cooked in boiling water, sometimes with cooking oil or salt added. Pasta are widely consumed throughout the world and their global consumption is second only to bread (Jayasena et al., 2008).The nutritional value of pasta will vary according to the ingredients from which it is produced. Carrot (Daucus carota) is an important root vegetable which is rich in vitamin C and beta carotene. They contain among others: saccharides, vitamins, proteins, aldehydes, alcohols, lipids, pectins, organic acids, fibre and mineral compounds. The use of carrot powder based pasta will contribute to increasing the nutritional value of pasta products. So, present study is going to be undertaken with the following objectives:
05.	Objectives	:	<ol> <li>To standardize the formulation of pasta of carrot powder</li> <li>To assess the quality parameters of pasta.</li> </ol>
06.	Principal investigator and associates	:	Dr. A. K. Senapati(PI), Dr. F M Sahu, Dr. Dev Raj
07.	Location and Agro-climatic sub-region	:	-
08.	Year and Season	:	2024
09.	Crop and Variety	:	Wheat flour, Refined Wheat flour, Rawa and Carrot powder Var. :Red carrot variety of Asiatic origin
10.	Experimental details	:	

	(a)	Treatments for performance	:	<ul> <li>(1) Number of treatments: 8</li> <li>(2) Number of Repetition: 3</li> <li>(3) Storage: Ambient temperature</li> <li>(4) Sample size:1 kg per treatment</li> <li>(5) Packaging material: 380 G PP and HDPE</li> <li>(6) Storage study : 0, 30, 60 Days</li> <li>(7) Quantity: 100 g of pasta per treatment per repetition</li> <li>Treatment detail: Formulation of pasta with Combined</li> <li>flour {Wheat flour:Rawa:Refined wheat flour(25:50:25)}</li> <li>and Carrot powder</li> </ul> Treatments <ul> <li>Combined flour</li> <li>(Wheat flour:Rawa:Refined wheat flour(25:50:25))</li> <li>and Carrot powder</li> </ul>					
				T <sub>1</sub>	100	0			
				1 <sub>2</sub>	93	5			
				T <sub>3</sub>	90	10			
				T4	85	15			
				T <sub>5</sub>	80	20			
				T <sub>6</sub>	75	25			
				T <sub>7</sub>	70	30			
				T <sub>8</sub>	65	35			
	(b)	Experimental Design	:	CRD					
	(c)	Replications/Repetitions	:	Three					
11.	Observations to be recorded			<ul> <li>Physico-Chemical Characteristics {Moisture content (%), crude protein, crude fiber, ash contents, Beta carotene(mg/100g) Carbohydrate, Hardness(N), Rehydration ratio, Recovery (%), L*, a* and b* value, Cooking quality{Optimum cooking time, water absorption, Swelling index}</li> <li>Sensory Evaluation (Colour, Taste, Flavour, Texture, Overall acceptability)</li> <li>Microbiological parameter (CFU/g)</li> <li>Economics of the processed products</li> </ul>					

## 12. Methodology (if necessary)



## Process Flow Chart for Preparation of pasta from carrot powder and wheat flour, Rawa and Refined wheat flour

Take wheat flour, Rawa, Refined wheat flour and carrot powder Var. :Red carrot of Asiatic origin

For dry mixing of ingredients as per treatments  $\downarrow$ Add water @30% to make dough  $\downarrow$ Kneading it for 30 min  $\downarrow$ Pass the dough into the extruder  $\downarrow$ Pasta kept in cabinet dryer at 60°C to for 2-3 h  $\downarrow$ Packed pasta in 380 G polypropylene and HDPE pouches  $\downarrow$ Stored at ambient condition for further analysis and uses