



**ORIGINAL ARTICLE**

## EFFECT OF CARROT POMACE POWDER ON THE QUALITATIVE TRAITS OF BISCUITS

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**Abstract:** The research is aimed to use carrot pomace after extracting the juice, and study its functional properties. The results of the chemical composition of carrot pomace were as follows: moisture 3.88%, protein 4.33%, fat 3.11% , ash 0.65% , crude fibre 13.22% and carbohydrates 88.03%, respectively. The results of the functional traits of carrot pomace were water holding capacity and swelling were 292.39 g, 98%, respectively while solubility and foam were 11.50% and 4%. The properties of flow were also studied the value of the bulk density and the tapped density were 0.5 and 0.65 g/cm, respectively whereas the value of the Hausner s Ratio and Carrs index were 1.24 and 19.35%, respectively. The results of the sensory evaluation values of the biscuit decreased with increase in addition level that the best replacement rate was 2.5% carrot-pomace. The firmness of biscuit ranged from 0.47 Kg to 4.25 Kg.

**Key word:** Fibre, Functional properties, Sensory evaluation, Bulk density.

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## 1. Introduction

Carrot is a cheap and highly beneficial crop, as it has a quantity of vitamins B<sub>6</sub>, B<sub>2</sub>, B<sub>1</sub> and B<sub>12</sub>. In addition to being high in carotene and fibers [Baljeet *et al.* (2014), Wafaa and Zahraa (2021)] during the commercial juice production process 30-40% of the Carrot is missing as the pomace and more than 50% of the carotenoids go with the pomace [Wafaa and Habib (2021)].

Efforts were directed towards making use of carrot pomace and incorporating it into foods such as bread, cake, high-fiber biscuits and production of functional drinks. Carrot pomace contains 4-5% protein, 8-9% reducing sugars, 5-6% minerals and 37-48% total fiber, so it is added at levels of 10, 20 and 30% to wheat flour to prepare high fiber salty and sweet biscuits to improve the mineral content and mechanisms of both the two types of biscuits [Surbhi *et al.* (2018)].

During juice industry 25% is lost in the form of organic waste such as a peels stems, seeds and pomace from extracting juice, the impossible by-product is low cost, natural, biodegradable and has many nutritional

applications and contains a good amount of tocopherols, sterols and antioxidants [Abd AL-Hseen and Manea (2020)].

The aim of this research was to estimate the influence of carrot pomace powder on sensory evaluation and physical Parameter of biscuit.

## 2. Materials and Methods

### 2.1 Preparation of carrots pomace

Following cleaning and washing, and before the juice extraction procedure, carrots were bought at a local market in Basrah, the pomace carrots were collected and dried at 60°C for 5 min until it dries complete, after that, the pomace was ground in a laboratory mill, and sieved using amicro-sized 200-250 μM.

Wheat flour, butter, sugar was purchased from Local market of Basrah city.

### 2.2 Chemical analysis

Moisture, ash, protein and fat were determined