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A Review : Development of Nutritional and Functional Cookies Using Composite Flour

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Abstract: *The development of new food products using composite flour has expanded, and is being taken into consideration by food scientists, particularly in the creation of bakery products. This review explores the use of composite flour to create food items, particularly treats with an overall review of the results of composite flour after some changes on rheology attributes and dietary benefits. Composite flour for the production of foodstuffs has not been discovered to preserve comparative qualities with products developed using refined wheat flour. The mixing of refined wheat flour with different wellsprings of Cassava, Sattu, and Barnyard flour in various rates to create assortment of food items are additionally announced in it. Overall, composite flour is a successful and modern approach of developing various functional foods using native food crops with different characteristics and quality that not only improves the people's nutritional status but also healing them from degenerative diseases associated with today's changing lifestyles and environment.*

Key Words: *composite flour, rheology, attributes, degenerative, functional.*

1. INTRODUCTION:

Cookies are the most popular and versatile snack in the bakery industry worldwide due to its affordable price, varied taste, convenience and relatively long shelf life without among other processed foods **(Hruskova and Svec, 2015)**. These are the second most widely consumed baked products followed by bread all over the world **(Wang, li, 2014)**. Cookies, the high-end variant of biscuits, have become an organized industrial commodity with its rich eating characteristics in the Indian market **(Pratima and Yadave, 2000).**

Cookies are a small, flat-baked food product with crispy and fluffy textures. They are primarily baked until they are crispy enough. They are made in a wide variety of styles by using an array of ingredients **(Chappalwar *et al.*, 2013)**. They are widely embraced and consumed in many countries by almost all consumer profiles, and thus provide a valuable tool for dietary change **(Arshad *et al.*, 2007)**. Because of the high content of carbohydrates, fats and low moisture, cookies are considered a concentrated food. From a nutritional point of view, their values can be enhanced by adding a certain number of ingredients. In this way, cookies have a tremendous ability to become a successful resource for delivering nutritious food to consumers. Another significant feature in designing cookies with improved nutritional status is the maintenance of a product's sensory characteristics because acceptability of the consumer's always remains the primary factor determining the successful implementation to a newly developed product **(Skrbic and Cvejanov, 2011)**. As consumers have become more concerned about health and demand for functional foods has risen, increasing demand for food processing to meet the nutritional requirements of individuals with special dietary needs pose a major challenge for food researchers to develop food products containing functional ingredients. The concept of composite technology initiated by the Food and Health Organization (FAO) in 1964 promotes the use of domestically grown crops rather than wheat, for example millets, cassava, yam, maize and others can upgrade both the nutritional, functional and organoleptic quality of the flour used in cookies production **(Jisha *et al.*, 2008)**.

2. IMPORTANCE OF COMPOSITE FLOUR FOR VALUE ADDITION:

Composite flour is defined as a binary or ternary mixture of flours from some other crops with or without wheat flour that can be totally or partially used in bakery and pastry products **(Shittu *et al.* 2007)**. Several developing countries have encouraged the utilization of alternative locally available raw botanical sources as a substitute for wheat flour is increasing due to the growing market for confectioneries due to following reasons:

- Feasibility of native species
- High yielding promotion
- Better supply of protein for human nutrition
- Better use of domestic agricultural products

3. UTILIZATION OF COMPOSITE FLOUR IN NEW PRODUCT DEVELOPMENT:

Utilization of composite flour	Reference
Composite flour for prepared products	**Nwanekezi**, **2013**
Composite flour in development of food product	**Noorfarahzilah *et al.*, 2014**
Prepared to-eat heat treat from composite flour	**Shuang *et al.*, 2016**
Cookie making potential of composite flour	**Svec *et al.*, 2015**
Development of biscuits by substitution of refined wheat flour incorporated with chick pea and date powder	**Jyotika *et al*.,2019**
Cookies produced from composite flours of wheat, germinated finger millet flour and African yam bean	**Abioye *et al.*, 2018**
Muffins formulation through barnyard millet	**Goswami *et al.*, 2015**
Incorporation of wheat malt into a cookie recipe	**Yang *et al.*, 2019**
Evaluation of cookies produced from composite flour of sweet potato and wheat flour	**Jemziya *et al.*, 2015**

4. NUTRITIONAL PROPERTIES OF COMPOSITE FLOUR BASED FOOD PRODUCTS:

Undernutrition and unhealthiest lifestyles are significant medical issues all over the world and the hidden reason is lacking food consumption as far as both quality and quantity **(Black *et al.*, 2003, FAO, 2003, Shankar, 2000**). Flour assumes a significant job in human nourishment, particularly in the dietary example of low-pay bunch in creating and immature nations. Thus, flour is an astounding vehicle for giving proteins, especially in prepared nourishments like bread rolls, treats, and cakes which are generally devoured because of their long time span of usability and great eating quality **(Akubor**, **2003**, **Hooda and Jood**, **2005).** Cassava flour have excellent quality characteristics which could be misused in bread kitchen applications, be that as it may, their intrinsic structures are not appropriate for the conditions during preparing. Notwithstanding, cassava flour has a sub-par protein synthesis (needs gluten and lacking in sulphur containing amino acids; methionine and cysteine) and has a low diastatic action which hampers its bread shop execution. Cassava starch, then again, has a flat flavor and magnificent thickening and gelling properties **(Mckey and Beckerman**, **1993**, **Salick *et al.*, 1997)**. Cassava is known to be a good and cheap source of carbohydrates, earlier report shown that cassava flour blends have some functional properties due to which it can be used in bakery product **(Akbur, 2003)**. Sattu is a brilliant source of several important supplements, for example, dissolvable and insoluble dietary filaments (**Brezinova *et al.* 2009)**, complex nutrient B, minerals and phenolic mixes. The most notable dietary advantage is linked to β-glucans, the major fiber constituents in grain. It is recommended that β-glucans decrease plasma cholesterol, improve lipid digestion, diminish glycaemic index and boosting the invulnerable framework. Studies have shown that grain can be effectively applied to a vast array of products such as breads, bars, biscuits, scones and treats **(Izydorczyk and Dexter**, **2008)**. Barnyard millet (Farm millet) contains no gluten, consequently it very well may be utilized for advancement of gluten free items for gluten narrow minded populace. Aside from this it has an amazing ability to mix with other food grains without conferring any off-flavor or trailing sensation. In spite of the dietary significance of farm millet just as its capability of being fused in novel food utilizes, its usage is constrained. Studies demonstrated the effective use of farm millet in bread kitchen items, for example, treats **(Surekha and Rohini**, **2013)** and rolls **(Anju and Sarita**, **2010)**.

5. VALUE - ADDED COOKIES USING COMPOSITE FLOUR:

Utilization of indigenous food crops for composite flour production are better for cookies development because they are nutritionally balanced, relatively prolonged shelf-life, less expensive and good eating quality. It provides an outstanding way of enhancing the nutritional quality of foods through incorporation of less costly non-wheat flour for food product enrichment due to their affordable price, convenience, shelf-stable, and nutritive value **(Pratima and Yadave, 2000, Okafor *et al.*, 2002 and Akubor, 2003)**. Cookies is traditionally produced from soft wheat which has a low protein content and soft kernels texture. **(Ma and Baik, 2018)**. It is made up of 3 major ingredients: refined flour, sugar, hydrogenated fats, and some minor ingredients such as additives and emulsifiers **(Wani *et al.*, 2015)**. However, due to the increasing nutritional requirements of cookies and limited use of soft wheat field, food scientist have adopted numerous strategies to improve the diversification and health benefits of cookies such as inclusion of dietary fibers, proteins and addition of fruit products **(Sudha *et al.*, 2019)**. Thus, it is becoming increasingly important for bakery production to achieve optimal efficiency and profitability.

6. CONCLUSION:

There have been many interesting findings and insights through this review. Using composite flours could lead to an improved use of native food crops and displays a high capacity as a functional agent in bakery products. The development and consumption of such functional foods not only improves the nutritional status of the general population

but also helps people suffering from degenerative diseases associated with today's changing lifestyles and environment. Selection of composite flour can also led to an increase production of cookies. Priority for commercial cookies creation eventually enlarges the production and efficiency.

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