



## FAT REPLACERS IN BAKERY PRODUCTS

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### ABSTRACT

Consuming bakery foods, which are quick stomach fillers, is difficult to remove from the diet but at the same time, eating a healthy bakery item is also essential to lead a healthy lifestyle. As fat is the major ingredient used in bakery foods that imparts the texture and taste contributes many calories, replacing these fats with an alternative ingredient can effectively reduce calorie consumption without altering the taste and texture. Thus, fat replacers can effectively be used in the preparation of many bakery products with reduced calories.

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### INTRODUCTION

In today's life, consumers always look for ready to eat food to nibble when they are starving. The snacking habit has become a part of the diet. People want to snack during their working hours, evening hours, while travelling, watching movies and even to fill the kids' lunch boxes. Apart from fried snacks, the bakery foods occupy major porting in snacking. Therefore, consuming healthy bakery foods is essential to maintain a healthy lifestyle in this busy life.

As per the reports available, the market for Indian bakeries earned around USD 7.60 billion during 2020. The market has also been projected to grow at a CAGR (Cumulative Annual Growth Rate) of eight point five percent between the year 2021 and 2026. The growth of the bakery market may scale up to twelve point three nine billions USD at the end of year 2026.

In the Indian Bakery market, the biscuits and cookies industry dominates and contributes around 72% of the sales. Compared to other countries, India stand highest among the biscuit consuming countries due to its high availability of raw materials and manpower. There are several unorganized bakery industries in India apart from major players such as in biscuit and cookies manufacturing industries.

The main ingredients that are used in the preparation of bakery products, especially biscuits and cookies, are cereal flour, sugar, fat, milk solids, salt, baking powder, baking soda, and flavours. Among these ingredients, fat draws the attention of health-conscious consumers as it is high in calories. One gram of fat provides 9 calories. So, the consumers are reluctant to consume high-fat bakery products. Hence, the reduction of calorie content by replacing fats has been studied by various researchers.

## FAT REPLACERS

Fat is one of the major macronutrients in the human diet. It has an important role in food matrices contributing to sensory and physical properties such as texture, taste, flavour, aroma, which all influences the overall palatability of the product. Many bakery foods depend on fat to fulfil these palatable qualities to maintain consumer acceptance and consumption. The recommended dietary allowance of fat is around 20-30 g per day as per the Indian Council of Medical Research, New Delhi, depending on the age, gender, physical activity and physiological condition of a human. However, people are consuming more than the required fat, especially hydrogenated fat, through bakery foods. Excess intake of these fats results in increased calorie consumption, leading to overweight and then obesity. Studies have already proven that obesity leads to the development of many non-communicable diseases such as diabetes mellitus, coronary vascular diseases, and disturbing day to day activities. Therefore, researchers have found an alternate solution to reduce the use of fat in bakery preparations. They are called Fat replacers. As it is difficult to avoid consuming bakery foods by the consumers, the development of bakery foods with fat replacers without changing the product's taste, texture, flavour, and appearance is necessary.

Fat replacers are defined as “an ingredient that provide some or all of the functions of fat and yield less calories compared to fat” by the American Dietetic Association. Fat replacers are made from carbohydrates, proteins, and fats (Table 1).

**Table 1: Some of the fat replacers used in the preparation of baked foods**

| <b>Fat replacers</b> | <b>Foods prepared using fat replacers</b> |
|----------------------|---|
| Inulin               | Cake, biscuit, cracker, muffins           |
| Maltodextrin         | Biscuit, cracker, cake, croissant         |
| Pectin               | Biscuit, cracker, cake, croissant         |
| Corn fibre           | Biscuit                                   |
| Rice starch          | Biscuit, muffin                           |
| Resistant starch     | Biscuit                                   |
| Polydextrose         | Biscuit                                   |
| Whey protein         | Biscuit                                   |
| Avocado puree        | Biscuit, cake                             |
| Apple puree          | Biscuit                                   |
| Bean puree           | Biscuit                                   |
| Green pea puree      | Biscuit                                   |
| Oat bran             | Biscuit                                   |

Source: Colla et al., 2018

Replacing the fats with gums in the preparation of cakes has resulted in acceptable taste and texture, comparable to the ones in which only fat was used. However, these gums cannot replace 100% fat, but even up to a reduction of 50% can lead to a greater reduction in calories.

More emphasis has been given recently for utilizing whole foods as fat replacers that are rich sources of nutrients such as protein, vitamins, and minerals. Apricot kernel flour was used as fat replacer in the preparation of biscuits. It had little impact on biscuits' physical and sensory properties at a maximum of 50% replacement. Mucilage from chia seeds was used in cakes and bread up to 100%. Even though the

researchers have done many studies to evaluate the effect of fat replacers in the preparation of bakery products, not many products with fat replacers are available in the market.

## CONCLUSION

It is well known that intake of more calories is very harmful, which leads to obesity. Consuming bakery foods, which are quick stomach fillers, is difficult to remove from the diet but at the same time, eating a healthy bakery item is also essential to lead a healthy lifestyle. As fat is the major ingredient used in bakery foods that imparts the texture and taste contributes many calories, replacing these fats with an alternative ingredient can effectively reduce calorie consumption without altering the taste and texture. Thus, fat replacers can effectively be used to prepare many bakery products with reduced calories.

## REFERENCES:

Colla, K., Costanzo, A., & Gamlath, S. 2018. Fat replacers in baked food products. *Foods* 7: 192-204.

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