

A Review Study on Adulteration in Bakery Goods †

Abhishek Bhadola ^{1,*}, Divya Bajpai Tripathy ¹

¹ Division of Forensic Sciences, School of Basic and Applied Sciences, Galgotias university;

* Correspondence: Abhishekbhadola.ab@gmail.com (A.B.);

† International Conference on Advanced Materials for Next Generation Applications, 29th – 30th September, 2021 (AMNGA-2021)

Received: 10.09.2021; Revised: 20.09.2021; Accepted: 21.09.2021; Published: 29.09.2021

Abstract: Adulteration in packed bakery products is done by making the product impure or altering its original form by adding materials or elements that are not usually part of it, especially inferior ones. It can be done intentionally by removing substances from food or unintentionally due to ignorance, carelessness, or lack of facilities for maintaining food quality. Potassium bromate is a flour improver that acts as a maturing agent. Potassium bromate converts into potassium bromide at high temperatures during the baking process. However, if too much is added, or if the bread is not baked long enough or not at a high enough temperature, then a residual amount remains in the bakery products, which may be harmful if consumed. It can cause abdominal pain, diarrhea, nausea, vomiting, kidney failure, oligonuria, anuria, deafness, vertigo, and hypotension, detection is done by spectrophotometric method, IC/Mass spectrometry provides detection, Ion Chromatography (IC), High-Performance Liquid Chromatography (HPLC) Synthetic colors in baked goods Blue #1 (Brilliant Blue) caused kidney tumors in mice. Red #3 (Erythrosine) Recognized as a thyroid carcinogen in animals. Red #40 (Allura Red) accelerates the appearance of immune-system tumors in mice. It also causes hypersensitivity (allergy-like) reactions in some consumers and might trigger hyperactivity in children. Yellow #5 (Tartrazine) causes severe hypersensitivity reactions. Yellow #6 (Sunset Yellow) Caused adrenal tumors in animals and occasionally causes severe hypersensitivity reactions. Identification of synthetic food colors adulteration by paper chromatography and spectrophotometric methods. In Adulterated chocolate, two adulterants are used arrowroot and dark rye flour detected by Near-Infrared (NIR) spectroscopy.

Keywords: adulteration; potassium bromate; IC/Mass Spectroscopy; ion chromatography; High-Performance Liquid Chromatography.

© 2021 by the authors. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Funding

This research received no external funding.

Acknowledgments

This research has no acknowledgment.

Conflicts of Interest

The authors declare no conflict of interest.