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Meat Technology — Special Issue 64/2

www.meatcon.rs ▪ www.journalmeattechnology.com

UDK: 637.521.238.4

ID: 126487817

https://doi.org/10.18485/meattech.2023.64.2.48

Original scientific paper

Monitoring of sulfites in kebabs and grilled meat

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ARTICLE INFO

Keywords:
Sulfites
Kebabs
Meat for grilling

ABSTRACT

Food additives are substances of known chemical composition, which are not consumed as food, nor are they a typical ingredient of food, regardless of nutritional value, but are added to food with the purpose of improving technological performance and retaining certain sensory properties. Additives widely used in the food industry include sulfur dioxide (SO_2) and sulfites (E 220 – E 228). Sulfur dioxide and its derivatives are added to food with the purpose of inhibiting and controlling the growth of microorganisms, preventing non-enzymatic browning, inhibiting reactions catalyzed by enzymes, and as antioxidants and reducing agents. The harmful effects of sulfur dioxide and sulfites are most often associated with allergic reactions from food, so it is necessary to provide consumers with information about their presence in food, even when they are found in very small amounts, because even then the possibility of an allergic reaction is not excluded. This research was conducted with the aim of determining the amount of sulfites in meat products in the period from 2019 to 2022. Altogether, 128 meat product samples were analyzed of which 53 were kebabs and 75 were meat for grilling. After testing, the mean levels of sulfur dioxide and sulfites in positive samples expressed in mg/kg were 210.0 mg/kg in kebabs and 110.6 mg/kg in meat for grilling. In conclusion, in most of the tested meat products, the sulfite concentration was below the established maximum permissible values according to national and European regulations.

1. Introduction

Sulfur dioxide and sulfites (SO_2) are additives that have been used for their disinfecting and purifying capabilities for at least 2,000 years. Sulfites are used in various technologies as preservatives, bleaching agents, antioxidants and flour treatment agents. They are allowed in many different foods, including wine, desserts, dried fruits and vegetables. They are employed in the food business to preserve the product's color, increase shelf life, and stop the development of bacteria. The majority of the time, they are added as additives during the production, processing, and storage of food products. However, they can also be naturally occurring components of foods, byproducts of the fungal metabolism in fermented beverages (beer, wine), or breakdown products of secondary metabolites containing sulfur (*Konić-Ristić and Šobajić*, 2005).

Different types of sulfites are used as additives. Because they are efficient antibacterial agents in acidic or acidified foods, inhibiting lactate dehydrogenase and other bacterial dehydrogenases, they are most frequently utilized as preservatives. Sulfites are additionally used as browning inhibitors since they

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Paper received May 10th 2023. Paper accepted May 18th 2023.
Published by Institute of Meat Hygiene and Technology — Belgrade, Serbia