**A CARCINOGENE COMPOUND IN MEAT AND MEAT PRODUCTS: HETEROCYCLIC AROMATIC AMINES**

**Esra BOSTANCI1\*, Sümeyye ÇETİNKAYA2 and Güliz HASKARACA2**

1Zonguldak Bülent Ecevit University, Engineering Faculty, Department of Food Engineering, Zonguldak, Turkey

2Sakarya University, Engineering Faculty, Department of Engineering, Sakarya, Turkey

\*Corresponding author:

Esra BOSTANCI

Zonguldak Bülent Ecevit University, Engineering Faculty, Department of Food Engineering, Zonguldak, Turkey

ORCID: 0000-0003-1756-8949

esra.bostanci@beun.edu.tr

**Abstract**

Meat and meat products are of vital importance in human nutrition with their high quality proteins, essential amino acids, vitamins, minerals and high iron content. Raw meat and meat products are not suitable for human consumption due to its “metallic, blood-like, serum-like sweet” and “slightly salty” taste. Thus, they are consumed after cooking by various methods such as grilling, roasting, and frying in oil. With the cooking, many parameters of meat and meat products develop or change such as physical properties (color, size, and tenderness), chemical properties (fat content, protein fraction, increasing flavor and aroma) and microbiological properties (decreasing in microorganism amount). On the other hand, when meat and meat products are exposed to high temperatures for cooking, some heat-induced carcinogenic and mutagenic compounds such as polycyclic aromatic hydrocarbons (PAHs), heterocyclic aromatic amines (HAAs), acrylamide and nitrosamines that adversely affect human health may occur. One of them, HAAs have mutagenic and carcinogenic effects. They are also reported to be one of the causes of many serious health problems for humans such as colon cancer, prostate cancer, colorectal cancer, bladder cancer, breast cancer, rectum cancer, kidney cancer, lung cancer, stomach cancer, pancreas cancer and aerodigestive cancer. Therefore, the formation and reduction strategies of HAAs in meat and meat products are very important to prevent diseases caused by these heat induced contaminants. In this study, it is aimed to make a brief review focusing on the chemical properties of HAAs, their mechanism of formation and precursors, their effects on human health, and methods of reducing HAAs in meat and meat products.

**Key Words:** Meat products, heat treatment, heterocyclic aromatic amines, human health, reducing strategies