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Chapter 17

Acrylamide in heat treated foods: alarm to society

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Introduction: Acrylamide (C_3H_5NO) is a major food toxicant, which is present in different food commodities. Modern research have shown that acrylamide is formed during formal heating via maillard reaction, through interaction of amino acids (especially asparagine) with reducing sugars like glucose. On the basis of previous research studies, it may be concluded that heat treated foods can produce acrylamide which may effect enzymatic as well as molecular alterations.

Acrylamide is known to neurotoxic, genotoxic, hepatotoxic, hematoxic, lung toxic in various studies. Someresearches has view that corresponding decarboxylated amadori compound may release acrylamide by a β elimination reaction. International agency for research on cancer

(IARC) has classified acrylamide as a probable carcinogenic agent to humans. European Food Authority Scientific Committee has declared that there is a health concern among the local population because of the relatively low MoE Values. Scientific reports have profound that both cereal and potato based food products that have been prepared via heating processes contain high amounts of acrylamide (30-5,600 ng/g).

History: The monomer, acrylamide was synthesized for the first time in 1949. It has been used since the 1950s mainly to manufacture polyacrylamide. Today, 99 % of the global production of this monomer is channeled into the manufacture of polyacrylamide. Acrylamide was the object of worldwide scientific research even before its discovery in foodstuffs. The first results from animal experiments were published in 1986. The data on the incidence of tumors indicated that no “safe dose” in the sense of threshold value, could