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## A PROSPECTIVE STUDY OF ACRYLAMIDE INTAKE FROM COFFEE CONSUMPTION IN LATIN AMERICA

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### Abstract

The formation of acrylamide in coffee occurs rapidly in the beginning of the roasting process. The presence of acrylamide in food such as coffee can pose risks to human health. Potential toxicological risks in foods are related not only to the presence of its precursors asparagine and reducing sugars, but also to the concentrations of these compounds in the raw material, which can vary significantly between different species, cultivation practices and processing. Coffee consumption and production in Latin America have increased in recent years along with production. According to the FAO, world coffee consumption is divided into five groups of countries according to average yearly per capita consumption: i) between 8.0 kg and 12 kg; ii) between 4.1 kg and 8.0 kg; iii) between 2.4 kg and 4.5 kg; iv) between 0.8 kg and 2.4 kg; and v) less than 0.8 kg. In this work, the countries of Latin America are divided into three groups according to annual per capital coffee consumption: Group 1: between 4.1 kg and 8.0 kg (Brazil, Argentina, Colombia and Costa Rica); Group 2: between 2.4 kg and 4.5 kg (Guyana, French Guyana, Honduras, Suriname, Uruguay, Venezuela); and group 3: between 0.8 kg and 2.4 kg (Bolivia, Chile, Cuba, El Salvador, Ecuador, Guatemala, Haiti, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico and Dominican Republic). There are great differences in the consumption of acrylamide-forming foods among populations from different countries besides wide variation in specific population groups (children, adolescents, adults, elderly, men versus women). This wide variation observed in the total levels of acrylamide in the diet in different food categories should stimulate the development of new approaches to reduce the acrylamide content of foods rich in this substance. coffee contributes to acrylamide intake in almost all population groups. This contribution varies demographically and the results indicate that for certain populations the amount of acrylamide received through consumption of coffee should be considered important. The literature shows a range from 0.5 to 4.21 µg of acrylamide per 300 mL of coffee and the World Health Organization recommends a maximum daily limit for acrylamide intake of 1 µg/kg bw. Thus, coffee is a beverage that contributes greatly to acrylamide intake. From the calculated data on acrylamide intake in Latin America, it was possible to estimate the daily intake in the region's countries. According to the maximum limit set by the WHO of 1 µg acrylamide per day per bw, for people in the countries of group 1, coffee represents high contribution for the intake of acrylamide. According to the maximum limit set by the WHO coffee represents high contribution for the intake of acrylamide. Thus, the focus should be on reducing the levels of acrylamide in foods, since they are the predominant sources of this substance for some populations. Also with the data found in the literature and the findings of the present study indicate the importance of a balanced diet as well as the development of techniques that can be implemented to reduce the formation of acrylamide in food sources such as coffee.

**Keywords:** *Coffea arabica*; *Coffea canephora*; food safety.