Artificial sweeteners: A brief review of their safety issues

Low-calorie sweeteners are authorised food additives in the European Union (EU). The safety of these sweeteners has been evaluated in accordance with internationally agreed principles for the safety evaluation of food additives. In the EU, the European Commission’s Scientific Committee for Food (SCF) was the scientific guarantor for the safety of food additives until March 2003. Since then this has been taken over by the European Food Safety Authority (EFSA), notably its Scientific Panel on Food Additives and Nutrient Sources Added to Food (ANS Panel). Based on the large number of toxicological studies that are requested for the safety evaluation of food additives, a no observed adverse effect level (NOAEL) is identified for the most sensitive effect in the most sensitive animal species. A safety factor of 100 is normally applied to the NOAEL in order to establish an acceptable daily intake (ADI) for humans. The ADI is the amount of the food additive, expressed on a milligram per kilogram of body weight (bw) basis, that can be ingested daily over a lifetime without any appreciable health risk. The following low-calorie sweeteners have been allocated an ADI by either the SCF or EFSA: acesulfame K, aspartame, cyclamates, neotame, saccharin, steviol glycosides and sucralose.