

Research project IZS VE 07/11

Determination of natural toxins and new veterinary drug residues in honey

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In recent years in many countries around the world and particularly in Europe, there has been a growing interest in the contamination of food by toxins of natural origin due to the use of plants that naturally contain them. These pollutants are also found in animal products derived from ruminants. Even the honey bee products may contain these substances. Natural toxins of great interest are the pyrrolizidine alkaloids (PAs). These are toxic compounds which occur in a large number of plant species and represent an important class of natural contaminants since most of these molecules are known to be hepatotoxic and probably tumorigenic in humans.

Another class of natural contaminants are grayanotoxins, synthesized by different plants of the family Ericaceae. There are many known cases of human poisoning following consumption of contaminated honey. Intoxication may lead to fatal cardiac bradyarrhythmias and circulatory collapse. In addition to these "natural" contaminants, in the honey bee products remains very much alive the problem of antibacterial drugs residues, whose use is not allowed in beekeeping, at least in the European Union. The recent notification of the European Rapid Alert System (RASFF) showed that a renewal of drug classes, nitroimidazoles, macrolides, fluoroquinolones, are replacing tetracyclines and sulfa drugs.

The aims of this study are to develop analytical methods to determine the presence of these substances in honey and to evaluate their presence in products collected on Italian market, either of national or foreign origin.