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Towards
the veterinary
diagnostics
of the
future

Main topic :

Potential ecotoxicological impact of veterinary drugs

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Veterinary drugs currently undergo a regulatory environmental risk assessment. The scientific literature, however, shows that the use of drugs in animals may have detrimental impact on our environment. This presentation will highlight some of the issues recently raised.

Many papers describe the presence of residues of drugs in surface or underground waters. It may be very difficult to assess the role of veterinary medicine for many of these residues. Nevertheless, some active ingredients are unique to veterinary medicine and raise several questions regarding their impact and the current risk assessment process.

Antimicrobials have been detected for many years in waters. We also detect them in manure used as fertilizers. Unfortunately, very little is known about their degradation and behavior in the environment. Suggestions are published for veterinarians for the appropriate management of animals with respect to environmental consequences.

Antiparasitic drugs are commonly considered as problematic drugs. Some, like avermectins, have been classified as PBT (Persistent, Bioaccumulative, Toxic) by the EU and are candidates for substitution. There is ample evidence that these drugs are toxic to invertebrates (mostly insects). Degradation of these drugs may take several weeks after a single administration. More recently, external parasiticides used in companion animals have been identified as potentially problematic : evidence of their presence in the environment has been documented in surface waters in the UK (fipronil, imidacloprid). The recent antiparasitic class of isoxazoline is also detected in feathers and hair used by birds to constitute their nest. We conducted specific kinetic studies and demonstrated that these drugs can be detected in the feces of treated animals for up to 3-5 months after a single oral or topical administration. Unfortunately, drugs used in companion animals are not evaluated for their environmental impacts and very limited information is available on the toxicity of these drugs to non target species. Nevertheless, the limited information found shows this prolonged elimination may be detrimental for species like flies and dung beetles.

It appears, also, that chemotherapeutic agents are highly toxic in the environment and can be detected but very little is done to adjust the regulatory requirements to the chemical, toxicological or biological characteristics of these drugs.

These findings suggest that it may be advisable to engage revision of the current environmental risk assessment for veterinary drugs