



Meinungen und Kommentare

Martin Paparella

Rodenticides – An Animal Welfare Paradox?

The development of more humane rodenticides is urgently needed.

Political interest in animal welfare within animal testing is encouragingly high in Europe. Lately this was demonstrated on occasion of the “Conference on Alternative Approaches to Animal Testing” on the 7th of November 2005 in Brussels. Also, the well publicised discussion in relation to the new REACH concepts reflects this awareness and, as a further example from our work, the European Biocidal Products Directive 98/8/EC, the related Regulations 2032/2003 and 1048/2005, and the Technical Guidance Document for (eco)toxicological risk assessment mention repeatedly that animal testing must be reduced as far as possible. In our experience, there are possibilities to accommodate animal welfare considerations within the regulatory toxicology of biocides, and authorities and industry have to respect or at least pretend to respect these. However, this is true only as far as the use of rats and mice for animal testing is concerned. When we address rodent control, we meet an astonishing animal welfare paradox – there is no practical possibility for regulators to react to animal welfare concerns about the suffering of rats and mice due to rodent control measures: Practically all existing rodenticides cause severe pain and suffering, usually lasting for several days (PSD, 1997; Mason and Littin, 2003), but undoubtedly rodenticides are essential for rodent control necessary to protect the hygiene and health of our society. In our point of view, this paradox indicates an astonishing lack of awareness of our society for animal welfare concerns related to rodent control.

The existing rodenticides belong mainly to the group of anticoagulants and, as mentioned, all are markedly inhumane. Also, the acutely toxic aluminium phosphide is considered inhumane. Whether cellulose-based products can score better in this respect cannot be answered yet, because so far the toxicodynamics are not completely clear, but they might well be at least as inhumane as anticoagulants. Thus, only chloralose and carbon dioxide remain as the less inhumane rodenticides. However, their potential of application is very restricted, since chloralose cannot be used for rats and requires ambient temperatures below 16°C, and carbon dioxide is a fumigant that needs to be applied rapidly in high concentrations, is considered markedly inhumane for newborn rodents (that resist carbon dioxide for a long time, Close et al., 1996) and still causes acute distress to adults (PSD, 1997; Mason and Littin, 2003).

Being involved in the evaluation, authorisation and registration of biocides in Europe, we feel obliged to bring to the attention of the research community that the development of new, more humane rodent control strategies is urgently needed, considering

- that the legal intention of the Biocidal Products Directive 98/8/EC to phase out vertebrate control products that cause unnecessary suffering and pain (98/8/EC Article 5.1. specified by Annex VI Article 91) cannot be translated into regulatory practice, since, according to an evaluation from the Pesticides Safety Directorate of the United Kingdom (PSD 1997) and

from the Massey University of New Zealand (Mason and Littin, 2003), nearly all available rodenticide control agents are markedly inhumane but nevertheless essential for rodent control. The evaluation is based on experience with similar clinical signs from humans, clinical signs of pain and distress observed in rodents, and evaluation of time to death.

- the number of animals affected, according to an estimation from Fox and Macdonald (1999), is 20 million just for the United Kingdom, which would sum up to more than 200 million in Europe.
- the attention that is paid already to animal welfare issues in the general public and within European legislation, politics and research, not least to R&D actions aimed to minimise animal testing.
- that the European research policy would be inconsistent if it only considered animal welfare related to animal tests affecting 10 million rats and mice in Europe each year, but did not consider the much larger number of rats and mice killed each year by rodent control measures (more than 200 million, see above).
- how much attention is paid by Industry and Competent Authorities to testing strategies and possibilities of waiving regulatory toxicological data requirements to save test animals, which indicates their ambition for animal welfare, but is inconsistent if at the same time the humaneness of killing the higher number of rodents for pest control is not considered.



- the high degree of pain and distress that would, if it occurred in animal testing, require a justification promising scientifically highly valuable results.
- the extensive pharmacological knowledge available today.
- that in Australia and New Zealand a policy intending to develop a more humane wildlife control, part of which is rodent control (RSPCA, 2003), has been under development for already more than two years.

Since the overall aim of such research would be to provide our society with the possibility to act humanely also regarding vertebrate control, it is self-explanatory that any animal testing for this purpose has to be based on the highest scientific background knowledge of pharmacology and toxicology, and that extraordinarily carefully selected testing strategies and test designs reducing the numbers and suffering of test animals to the very minimum possible are required. Therefore, we would like to bring this research need specifically to the attention of the 3Rs research community. Guidance for the evaluation of humaneness of rodenticides was written by Kate Littin and Cheryl O'Connor (2002, unpublished), and a compiled version is available from the author.

Furthermore, it is not anticipated that new, more humane rodent control necessarily needs to be based on chemical biocidal products (and as such regulated by the Biocidal Products Directive, BPD 98/8/EC). The only requirement is that the new, more humane rodent control measures should be useful as a replacement for certain applications of the existing rodent control products regulat-

ed by the BPD. For example, it could be a highly valuable research project to examine scientifically and practically, whether certain more humane mechanical, electrical or other products, e.g. in combination with other measures and with defined local and infestation situations, can sufficiently control the target rodents. This means that in our opinion research should not be focused exclusively on new, more humane rodent control products, but also on appropriate accompanying rodent control measures useful for increasing the humaneness of our means of vertebrate control.

Finally, it should also be mentioned, that besides animal welfare aspects also other arguments support the development of new rodent control products and respective control measures: 1. The biodegradability of most anticoagulants is extremely low (DG ENV Biocides) and secondary poisoning of e.g. birds is a significant ecotoxicological problem (CRRU, 2005). 2. Resistance development is a constant concern also for rodenticides.

References

- Close, B., Banister, K., Baumans, V. et al. (1996). Recommendations for euthanasia of experimental animals: Part 1. *Laboratory Animals* 30, 293-316.
- CRRU (Campaign for Responsible Rodenticides Use) (2005): <http://www.thinkwildlife.org.uk/index.php>.
- DG Environment Biocides, http://europa.eu.int/comm/environment/biocides/evaluation_reports.htm.
- Fox, N. and Macdonald, H. (1999). Welfare Aspects of Killing Wild Animals in Britain, edn 2. Carmarthen, Wales:

The Hawk Board. <http://www.falcons.co.uk/default.asp>.

Littin, K. E. and O'Connor, C. E. (2002). Guidelines for Assessing the Welfare Impacts of Vertebrate Poisons. Landcare Research Contract Report LC0203/006 New Zealand, unpublished.

Mason, G. and Littin, K. E. (2003). The humaneness of rodent pest control. *Animal Welfare* 12, 1-37.

PSD (Pesticides Safety Directorate) (1997). Assessment of humaneness of vertebrate control agents. (Food and environment protection act, 1985, part III, control of pesticides regulations 1986, Evaluation of fully approved or provisionally approved products, Issue 171; York YO1 7PX) http://www.pesticides.gov.uk/PSD_PDFs/Evaluations/171_assessment_of_humaneness_of_vertibrate_control_agents.pdf.

RSPCA (2003). A national approach towards humane vertebrate pest control. Discussion paper arising from the proceedings of an Australia/AWC/VPC joint workshop. August 4-5, 2003, Melbourne. <http://www.rspca.org.au/events/seminar2003.asp>.

Correspondence to

Dr. Martin Paparella
Kompetenzzentrum
Biozide/Expert Centre Biocides
Umweltbundesamt GmbH/Federal
Environment Agency Austria
Spittelauer Lände 5
A-1090 Wien,
Österreich
E-Mail:
martin.paparella@umweltbundesamt.at
www.biozide.at