

Dr Michael S Rose  
CTL

Dr D M Foulkes  
Jealott's Hill

Dr L L Smith, CTL  
Dr A Calderbank, J. Hill  
Miss N T Frost, RATLS  
Dr I F H Purchase, CTL  
Dr M H Litchfield "

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Re: Godfrey Teal's letter to you of 8 November 1978

Lewis and I have discussed the principle of the addition of tincture of Capsicum to paraquat formulations. We are not clear, however, whether this is being suggested in addition to other measures such as adding emetic and dilution. On its own, we feel that it is not a good idea as it is known that a "mouthful" of Gramoxone can kill and unpalatability is insufficient to prevent people swallowing such a quantity. Equally, if the pepper extract acts like eating chillies, there is a delay in experiencing the burning sensation. As Godfrey himself points out, the deliberate ingestion of rodenticides does not appear to have been affected by inclusion of the extract.

On toxicological grounds, there is nothing that can be done experimentally to look at the effectiveness of this approach, but several studies need to be done to ensure that the hazards of the formulation are not increased. It will be necessary to examine : (a) the effect of the additional irritancy of the extract on the dermal toxicity of the concentrated formulation, (b) the effect of the extract on the oral toxicity of concentrated and dilute formulations and (c) the toxicity of the extract itself (Ames' test, etc).

Provided nothing detrimental emerges from such investigations, there might be an advantage in adding the extract to a dilute, emeticised formulation. However, both Lewis and I feel strongly that the technical arguments favour dilution and addition of emetic as the best approach to attempting to reduce mortality from suicidal ingestion of paraquat.

One further point, I would like to comment on relates to the data presented on the effect of PP796 on dogs. I am concerned, from the range of concentrations used, that Nichino are not aware of the different sensitivity of man and dog to the emetic. As pointed out in reports on the emetic (CTL/R/390(R) and CTL/R/391) man is at least ten times more sensitive to the emetic and doses in the region of 1 to 5 mg/kg are needed to get the majority of dogs and monkeys to vomit.

Finally, I would like to suggest that in future, Lewis Smith be contacted direct on any enquiries relating to toxicological matters on paraquat and Japan. His recent visit there means that he has a very good grasp of the current problems.

Michael S Rose(Dr)