

THE USE OF F10 AS A TREATMENT FOR BACTERIAL AND FUNGAL DISEASE IN ANURANS

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ABSTRACT

F10 is a veterinary disinfectant which contains quaternary ammonium and biguanidine compounds which act synergistically to kill a wide range of viruses, bacteria, fungi and spores. It is available in various formulations, including a concentrated disinfectant for dilution with water (F10SC; Health and Hygiene) and an ointment (F10 Germicidal Barrier ointment; Health and Hygiene). These products have been used by the authors and others on a wide variety of vertebrates and show efficacy at low concentrations, with short contact times and with minimal tissue irritation.¹⁻⁴ In amphibians the systemic absorption of topical medications is a particular concern, however there is one report of the topical use of F10SC to treat ulcerative skin disease in 21 Tomato Frogs *Dyscophus guineti*.⁵ Here we report the use of F10 Products in other anurans, including painted red frogs *Hyperolius marmoratus*, guttural toads, *Amietophrynus gutturalis* and a Natal ghost frog, *Helophryne natalensi*.

Two guttural toads presented with skin discolouration, vesicles and ulcers of the rostrum and plantar surfaces of the distal limbs. Inappropriate substrate was thought to be the underlying cause with bacteria and yeasts cultured as secondary contaminants (*Acinetobacter sp.*, *Cryptococcus laurentii* and *Candida tropicalis*). Daily application of F10 Germicidal Barrier Ointment in combination with systemic enrofloxacin 5mg/kg s.i.d. i.m. (Baytril 5%; Bayer) and husbandry changes resulted in resolution of the lesions. Four

guttural toads with suspected bacterial dermatitis were treated for 9 days with F10SC diluted 1:250 in reverse osmosis (RO) water applied by daily fogging using a nebuliser for 15-20 min. A mixed growth of contaminants was cultured. Systemic enrofloxacin at 5mg/kg s.i.d. i.m. was also given and the toads made a full recovery.

A Natal ghost frog was fogged with F10SC in the same way after a skin colour change of unknown cause. Treatment was discontinued after 5 days when normal skin colour returned. F10SC diluted 1:2000 in RO water was also used to bathe two painted reed frogs after routine PCR tests for *Batrachochytrium dendrobatidis* were positive. The frogs were bathed daily for 5 min for 12 days and subsequently tested negative for *B dendrobatidis*. Another painted reed frog diagnosed by histopathology with cutaneous phaeohyphomycosis was bathed daily for 5 min with F10SC diluted 1:3000 with RO water for 30 days. There was no apparent resolution of lesions and the frog was then euthanised due to an outbreak of *mycobacteriosis* in the group.

These cases show that F10 Products can be useful for the treatment of bacterial and fungal skin disease in anurans including the important pathogen *B dendrobatidis*. F10 at a concentration of 1:3000 has been shown to be 100% effective in killing *B dendrobatidis zoosporangia* in vitro⁶ and the authors are currently carrying out an in vitro trial using guttural toads.

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