

Novel Formulation for Theeffective Treatment of Udder Crack and Contagious Ecthyma

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Abstract: *Udder cracks and contagious ecthyma (orf) present single-edged health risks to small ruminants that reduce milk production by 30-50 percent and contributes to zoonotic risks in pastoral areas such as rural India. palliativespovidone iodine with antibiotics extend recovery to 3-4 weeks as the virus remains within the body, ignoring the results of the 1963 study which found viruses in 7 of 10 patients using the iodine, and fissures selectively amplify parapox invasion as observed in the 1967 study (Ruskin, 2000). palliativespovidone iodine, antibiotics extend recovery to 3-4 weeks but allows the virus to persist This was a randomized controlled trial that compared a new liposomal preparation (2 percent azadirachtin, 10 percent zinc oxide, 0.5 percent chlorhexidine) with conventional povidone iodine in 120 Jamnapari goats with confirmed dual lesions on Maharashtra farms (March-August 2025). Without any interval between treatment sessions, animals (n=60/arm) were subjected to twice daily topical applications 28 days after the start of the study (milking). Main outcome: healing period (lesion score =1). Secondaries: qPCR viral load (log reduction), bacteria clearance, pain (grimace scale), udder girth (productivity proxy). Mixed effects models (SAS 9.4; p<0.05) were used as the intention to treat analysis.*

The formulation reduced median healing to 9 days (vs. 16 controls; p<0.001), and 85% resolution by day 28 (OR= 4.2, 95% CI 2.1-8.4). By 14 days, the viral titers had decreased 2.8 logs (Ct 2235); cultures cleared in 92% (68%). Normal girth at day 12 (vs. 21); pain remitted in 80 percent at day 7. No adverse events differed (p=0.72). Transdermal liposomes with prolonged release during shear held fast together the antiviral eclipse of neem and the zinc barriers eclipsing cidofovir (2-3 log drops) and Tri-Solfen through the reparative synergy.

Keywords: Udder crack, Contagious ecthyma, Orf virus, Novel liposomal formulation, Azadirachtin, Zinc oxide barrier, Veterinary dermatology, Caprine clinical trial, Wound healing, Antiviral therapy, Livestock productivity

