COLLOIDAL METALLIC SILVER (CMS) AS AN ANTISEPTIC: TWO OPPOSING VIEWPOINTS

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Introduction: The TGA has refuted the value of CMS as an antiseptic, forbidding claims for efficacy other than ‘sterilising water supplies’. Laboratory studies show this position is not in accord with the facts.

Aims: To evaluate antibacterial properties of some CMS preparations available from local pharmacies, health food stores or via the Internet.

Methods: Twelve commercial CMS formulations were analysed for total Ag content, pH, conductivity, colloidal character (light scattering by Ag₀ nanoparticles) and content of non-colloidal silver (Ag⁺) ions. Antimicrobial activity was determined by growth inhibition against a panel of pathogenic bacteria and 3 fungi (Aspergillus niger, Candida albicans, Saccharomyces cervisiae). Toxicity (LC50) was assessed by the Artemia franciscana (brine shrimp) nauplii bioassay.

Results: The 12 CMS preparations tested ranged from 2.5-14500ppm; 10 (83%) were found to have inhibitory activity, albeit with varying specificity and efficacy. Argyrol and HLY displayed the broadest specificity, inhibiting the growth of all 14 bacteria tested (100%). These 2 preparations also inhibited the growth of 3 (100%) and 2 (67%) of the fungal species tested respectively. Only low concentrations of CMS were required for antibiotic activity, with MIC values ≤ 5µg/ml for some preparations against certain pathogens. Two commercial colloidal gold preparations were devoid of antimicrobial activity. All CMS preparations displayed low toxicity in the Artemia franciscana nauplii bioassay, further confirming their value as antiseptics for medicinal use.

Discussion: CMS preparations should still be seriously considered as alternative medicinals for topical treatments e.g. burns, periodontitis and thrush after applying strict Quality Controls for antimicrobial efficacy and incipient toxicity to animal cells. They may also have wider ramifications for treating chronic diseases post infection eg Proteus spp. and rheumatoid arthritis.[1]