Review of: "The Efficacy of Copper Nanoparticles in Treating Viral Skin Infections: A Systematic Review and Meta-Analysis"

Heba El Sayed ElZorkany[1]

1 Oakland University

Potential competing interests: No potential competing interests to declare.

I went through the article and I can see major issues that make it unsuitable for publishing as follows:

In section 2.1, the definition of copper nanoparticles introduces a tiny particle as a meaning of nanoparticles which is a scientifically deficient definition as the exact meaning of nano is 1*10^-9 meters, and nanoparticles are particles in size range from 1 to 100 nm.

In section 2.3. Mechanisms of Action of Copper Nanoparticles against Viral Infections

The authors mentioned ref 8, which is all about silver nanoparticles and copper didn't mention unless one time to represent the sequence of metal toxicity. Both references 8&7 are not talking about the interaction between copper nanoparticles and viral infections which is not suitable at all to the title. On the other hand, by simple search, there are many other more recent literature that is more related and has more details about copper Np mechanism, and most of them give insights about viral fighting (e.g. Ermini M. and Voliani V. 2021, Woźniak-Budych M. et al 2023, Ma X. et al 2023, etc.).

In section 5.2. Assessing the Safety Profile of Copper Nanoparticles in Clinical Studies

Authors support their claim about the safety of copper nanoparticles depending on one relatively old reference that is basically about silver nanoparticles, not copper NPs, which gives a very bad impression about the method of search used to generate this review.

In section 5.3. Risk-Benefit Analysis: Balancing Efficacy and Safety

The authors stated "Fortunately, there aren't many concerns connected to copper nanoparticles, and there may be more advantages than disadvantages. Therefore, it appears that copper nanoparticles win out in this risk-benefit comparison" which is completely untrue as copper NPs are known to cause severe symptoms e.g. Oxidative stress response, Increased levels of intracellular ROS, DNA oxidation, Kidney and liver damage, etc., and authors can dig more in real existing scientific literature to find the scientific evidence.

Reference 28 was written in the wrong way missing the year of publishing, plus the mentioned authors are not the right authors of this paper.

Reference 29 is not available online even on the webpage of the mentioned journal, the mentioned issue of the journal doesn't contain any article with the same name.

In section 6.2. Potential Advantages and Disadvantages of Copper Nanoparticles

The references in this section talk about different types of nanoparticles or do not support the mentioned claims.

Overall, the manuscript is very poor, misses crucial scientific details, and deals superficially with the topic. The references used throughout the manuscript concern the nanotechnology part, especially copper NPs, are mostly outdated and ignore crucial and more recent literature. The claim that "copper nanoparticles offer a promising and safe treatment option combined with their relatively low risk of side effects" is scientifically not accurate at all. Even the authors didn't introduce enough evidence for it, so I see it as rejected.