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[\[PDF \(126K\)\]](#) [\[References\]](#)**Effect of Copper, Iron, Zinc and Magnesium Ions on Bovine Serum Albumin Gelation**[Zahur Z. HAQUE](#)<sup>1)</sup> and [Kayanush J. ARYANA](#)<sup>1)</sup>*1) Department of Food Science and Technology, Southeast Dairy Foods Research Center*

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This study was conducted to observe the effect of trace amounts of various ions  $\text{CuSO}_4$ ,  $\text{FeSO}_4$ ,  $\text{ZnSO}_4$  and  $\text{MgSO}_4$ , on the microstructure of bovine serum albumin (BSA) gels. Microstructure was studied using transmission and scanning electron microscopy. Protein dispersions (5% w/v) were made in 0.1 M NaCl containing 5 mM of each of the divalent cations. The pH was adjusted to pH 7 using 0.1 N NaOH. Addition of  $\text{CuSO}_4$  markedly changed the microstructure of BSA gels; significantly larger water entrapping void spaces were seen and the gel matrix comprised of larger aggregates. An opposite effect was seen for  $\text{MgSO}_4$  which gave compact gels with significantly smaller gel matrix forming protein aggregates and void spaces. Trace amount of minerals impacting microstructure of gels as observed in this study has dramatic functional implications. This is because the aggregate size determines whether the gel is opaque or transparent and the degree of water entrapment effects texture.

**Keywords:** [microstructure](#), [trace-metals](#), [gelation](#)[\[PDF \(126K\)\]](#) [\[References\]](#)

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