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**Title:** The Effects of the chaperone property of argentine (small molecule) and chemical chaperones glycerol and α-Crystallin in preventing aggregation of alpha-lactalbumin in the crowded system

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**Abstract:** Aggregation is phenomenon in which protein loses its native structure and adopts an abnormal conformation. Misfolded protein aggregates by binding to other proteins with similar situations which causes amyloidosis diseases such as Alzheimer depending on its location. Molecular chaperone are classified in a group of cellular proteins which mediate correct folding of polypeptides. They bind to exposed hydrophobic surfaces of unfolded proteins, avoid unsuitable interactions which may lead to aggregation. Glycerol belongs to the polyols family of chemical chaperones, which are known to stabilize protein conformation and prevent aggregation. α-Crystallin is a member of the small heat shock proteins family that has been shown prevents aggregation. Arginine is a small molecule that has been proven to act as molecular chaperon. Physiological media in living cells are crowded due to the high total concentration of macromolecules such as carbohydrates.

In this study, comparison of the chaperoning action of α-Crystallin and glycerol and arginine in preventing of aggregation of α-lactalbum in crowded system examined using ANS binding, intrinsic fluorescence, CD spectroscopy and Electrophores. Glycerol and arginine showed significant effect in preventing protein aggregation. Arg had positive effect to the chaperone action of α-crystallin in the presence of dextran, the effect of Arg on the chaperone ability of α-crystallin was less and the chaperone ability of glycerol and arginine decreased. Dextran induced the aggregation of protein and structural change chaperone. However, the result demonstrated the higher activity of Arg in the presence of dextran. This is likely due to the better stabilizing effect of Arg on protein structure and environment. the effect of Arg on the activity of the α-crystalline in crowded system, it can provide mechanism to protect cells against aggregation.

**Presentation:** Poster

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