

Effect of Formulation Compositions and Freezing Rates on the Conformational Changes of Influenza Virus Haemagglutinin (HA)

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Abstract : The influence of freezing cycle on influenza haemagglutinin (HA) conformational stability was investigated in terms of freezing rates and formulation compositions. The results showed that appropriate HA conformation could be evaluated using circular dichroism (CD) spectroscopy with HA concentration of greater than 0.09 mg/ml. The intermediate freezing rate of approximately 1.0oC/min preserved the original HA conformation better than at slow freezing rate (0.5oC/min) and rapid freezing rate (2.6oC/min). The changes in CD spectra of the secondary HA structure were more pronounced than those of the tertiary HA structure during the evaluation. Additionally, the formulations, which resulted in the highest conformational stability were found to have sucrose present in the composition. As opposed to when only glycine was used, the stability of HA conformation was poor.

Keywords : freezing, haemagglutinin, influenza, circular dichroism

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