

Fluorescence of Spectroscopy Study on the Interaction of Lysozyme with Quercetin

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Lysozyme (EC 3.2.1.17, LYS) is a globular, ubiquitous and thermolabile protein, with high enzymatic and bacteriostatic activity, has a highly conserved structure and is widely distributed in nature. Chicken egg white is a natural source of LYS. However, it can trigger very serious allergic reactions, especially in babies and children.¹ The objective of this work was to study the interactions of LYS from hen's egg with quercetin, in order to investigate the possibility that these interactions promote the reduction of LYS allergenicity by altering its conformation. The binding mechanism between LYS and quercetin was investigated by fluorescence spectroscopy with the emission spectrum recorded from 295 nm to 450 nm at an excitation wavelength of 280 nm. The concentration of LYS was fixed at 2 μM , while the solutions of quercetin ranged from 10 to 72.5 μM , in 50 mM phosphate buffer and pH 7.40, as they were incubated for 10 minutes at 310 K.² An increase in fluorescence suppression was observed with increasing concentrations of quercetin (**Figure**). Fluorescence-derived thermodynamic data showed the formation of complexes between LYS and quercetin. Therefore, the interactions of LYS with quercetin give rise to changes in the conformational structure of the protein, and so to a possible reduction in its allergenicity.

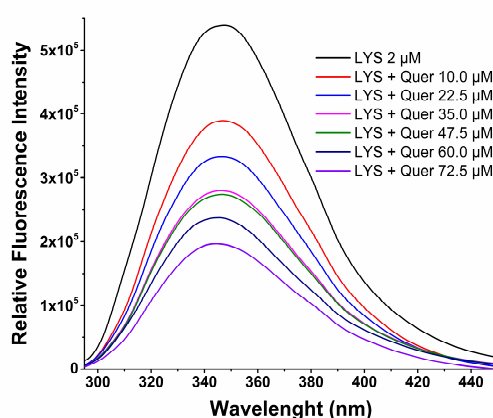


Figure. Fluorescence spectra of LYS (2 μM) with Quercetin (Quer).

References

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