# Effects of Sugar Components on the Properties of Enzymatically-induced Soy Protein Coagulum

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To elucidate the role of soybean proteins in enzymatic coagulation, and to analyze the effect of glycan moiety of β-conglycinin (7S) on the coagulation, dynamic rheological properties during the enzymatic coagulation as well as other physicochemical properties of soybean proteins were studied.

The coagulation of commercial soybean protein isolate (SPI) by papain and alcalase at different temperatures were studied. The results showed that papain had higher thermal stability than alcalase. The results of Arrhenius plot suggested that the coagulation by both alcalase and papain at different temperatures was single process and that the coagulation induced by papain depended more on temperature than that by alcalase.

The coagualtion of commercial SPI and 7S dispersions with presence of papain were studied at 40℃. Dynamic viscoelasticity of 7S dispersion developed faster than that of SPI, indicating that commercial 7S was easier to coagulate and formed firmer coagulum than SPI.

The observed clotting time and dynamic rheological properties of extracted 11S (E11S) , 7S (E7S) and SPI (ESPI) with presence of papain were compared. The E11S dispersion coagualted much faster than ESPI and E7S, and the E7S was the slowest. The saturated modulus values were ordered as E11S > E7S > ESPI, indicating that 11S played a key role in the papain induced coagulation.

No significant difference was found for the clotting time by papain between the deglycosided 7S (D7S) and its intact control. The D7S coagulum was little bit firmer than the control one, but both formed very weak coagula. The deglycosidation was not effective to enhance gel structure induced by papain.

It can be concluded that deglycosidation is not very effective for increasing the gel strength of the enzymatic coagulum of soybean protein. Soybean 11S plays a key role in the coagulation of the enzymtaic coagulation, the same as reported in tofu-like gels induced by saline or acid coagulants.