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## Effects of endogenous small molecular compounds on the rheological properties, texture and microstructure of soymilk coagulum

In order to clarify the roles played by small molecular compounds in soymilk in its coagulation process and the properties of gels, soymilks whose amount of small molecular compounds were respectively 39.1% (DSM1), 26.7% (DSM2) and 13.4% (DSM3) of that in original soymilk (OSM) were prepared using ultra-filtration method. CaSO<sub>4</sub>-induced coagulation process was analyzed using rheological methods. Results showed that removal of free small molecules could lower the activation energy of protein coagulation and make protein more sensitive to the coagulant, resulting in accelerated coagulation and increased gel strength. When coagulation was too fast, gel strength dropped instead. Observed by confocal laser scanning microscope (CLSM) and scanning electron microscope (SEM), when coagulation reaction was largely accelerated, the structure of gel network got coarser and more inhomogeneous with larger pores, which could no longer hold much water. With the increasing extent of reducing small molecules, syneresis of coagulated gels became more serious. It could be seen that the free small molecular components in soymilk were very important for the formation of fine gel structure. By adjusting the amount of these compounds, coagulation rate could be controlled so as to obtain good tofu products with ideal texture.

### Biography

Ruican Wang is a PhD student at College of Food Science and Nutritional Engineering, China Agricultural University in Beijing, China under the supervision of Professor Shuntang Guo. Her research is focused on plant protein processing and utilization, especially soybean and cereals.

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