

## 参考文献

- 1 胡坤,赵谋明,彭志英. 表面活性剂与多糖对蛋白质乳浊液稳定性的影响[J]. 食品与发酵工业. 2002, 28(6): 61~65
- 2 Dickinson E., Maria G, Semenova A S, et al. Effect of high-methoxy pectin on properties of casein-stabilized emulsions[J]. Food Hydrocolloids. 1998,12: 425~432
- 3 胡国华. 功能性食品胶[M]. 北京:化学工业出版社, 2005, 295
- 4 Erix P Schokker, Douglas G Dagleish. The shear-induced destabilization of oil-in-water emulsions using caseinate as emulsifier[J]. Colloids and Surfaces A, 1998,145: 51~69
- 5 Sedlmeyer F, Brak M, Radmacher B, et al. Effect of protein composition and homogenisation on the stability of acidified milk drinks[J]. International Dairy Journal, 2004, 14:331~336
- 6 Millane R P, Chandrasekaran R, Arnott S et al. The molecular structure of kappa-carrageenan and comparison with iota-carrageenan[J]. Carbohydrate Research, 1988, 182: 1~5
- 7 Tesch S, Schubert H. Influence of increasing viscosity of the aqueous phase on the short-term stability of protein stabilized emulsions[J]. Journal of Food Engineering, 2002, 52: 305~312
- 8 Dickinson E, Pawlowsky K. Effect of  $\kappa$ -carrageenan on flocculation, creaming, and rheology of a protein-stabilized emulsion[J]. Journal of Agriculture and Food Chemistry, 1997, 45: 3 799~3 806
- 9 Grotenhuis E T, Paques M, Aken V G A. The application of diffusing-wave spectroscopy to monitor the phase behavior of emulsion-polysaccharide systems[J]. Journal of Colloid and Interface Science, 2000, 227: 495~504

Effects of  $\kappa$ -Carrageenan on Stability of Soy Protein Isolate EmulsionZhao Qiangzhong<sup>1</sup>, Zhao Mouming<sup>1</sup>, Li Jianrong<sup>2</sup>, Cui Chun<sup>1</sup><sup>1</sup>(College of Light Industry and Food Science, South China University of Technology, Guangzhou 510640, China)<sup>2</sup>(College of Food Science, Biotechnology and Environmental Engineering,

Zhejiang Gongshang University, Hangzhou 310035, China)

**ABSTRACT** Effects of carrageenan on fat globule size distribution, creaming rate and centrifugal sedimentation rate of soy protein isolates were studied. There was a good correlation between fat globule diameter and creaming rate, centrifugal sedimentation rate during the storage. The results indicated that the concentration of carrageenan from 0 to 0.09%, the order of fat globules size was  $0.03\% < \text{control} < 0.06\% < 0.09\%$ , but higher concentration of carrageenan could result in higher apparent viscosity. Creaming rate showed strong positive correlation with  $d_{3,2}$  on the top of emulsions and centrifugal sedimentation rate showed strong positive correlation with  $d_{3,2}$  in the bottom of emulsions. The possible mechanism was elucidated as follows: when carrageenan concentrations were low, polysaccharide adsorbed to the protein of the positive charge area, the absorbed polysaccharide molecules increased electrostatic repulsive force between oil droplets. When the polysaccharide concentrations increased, depletion flocculation was occurred.

**Key words**  $\kappa$ -carrageenan, emulsions stabilized by soy protein isolates, creaming, sedimentation

## 可持续生物燃料的国际标准草案出台

国际可持续生物燃料圆桌会议指导委员会 2008 年 8 月 13 日宣布,有关如何定义和衡量具有可持续性的生物燃料的国际标准草案正式推出,该国际标准草案旨在为投资者、政府、企业和民间社会评估不同种类生物燃料的可持续性提供参照。这套国际标准草案推出后的 6 个月中,将向全球开放以供讨论。计划 2009 年 2 月基本完成磋商过程,2009 年 4 月正式出台第一版可持续生物燃料的国际标准。

这套国际标准草案内容涉及生物燃料开发的一些主要问题,例如,生物燃料对于减缓气候变化和促进农村发展的影响,开发生物燃料与保护土地和劳工权利的关系,生物燃料对于生物多样性、土壤污染、水资源以及粮食安全的影响,等等。