



# Agricultural Journals

*Czech Journal of*

**FOOD SCIENCES**

[home](#) [page](#) [about us](#) [contact](#)

[us](#)

## Table of Contents

### **IN PRESS**

**CJFS 2014**

**CJFS 2013**

**CJFS 2012**

**CJFS 2011**

**CJFS 2010**

**CJFS 2009**

**CJFS 2008**

**CJFS 2007**

**CJFS 2006**

**CJFS 2005**

**CJFS 2004**

**CJFS 2003**

**CJFS 2002**

**CJFS 2001**

**CJFS Home**

## **Editorial Board**

### **For Authors**

- **Authors Declaration**
- **Instruction to Authors**
- **Guide for Authors**
- **Copyright Statement**
- **Submission**

### **For Reviewers**

- **Guide for Reviewers**
- **Reviewers Login**

---

### **Subscription**

# **Czech J. Food Sci.**

**Xie Y., Wang A., Lu Q.,  
Hui M.:**

# The effects of rheological properties of wall materials on morphology and particle size distribution of microcapsule

Czech J. Food Sci., 28 (2010): 433-439

The effects of rheological properties of the wall materials on the morphology and particle size distribution of microcapsules prepared by spray-drying were evaluated. Gelatin-sucrose (Gel-Suc), gelatin-peach-gum-sucrose (Gel-PG-Suc), and HI-CAP 100 were used as wall materials with vitamin A as a model core material.

Scanning electron microscopy (SEM) showed that microcapsules produced with Gel-Suc exhibited cracks while Gel-PG-Suc produced a smooth surface with few pores, and HI-CAP100 a rounded surface containing characteristic concavities. The volume average diameter ( $D_{4,3}$ ) showed significant variations from  $73.9 \pm 1.02$

$\mu\text{m}$  and  $68.7 \pm 0.85 \mu\text{m}$  to  $29.9 \pm 0.94 \mu\text{m}$  ( $P < 0.05$ ). Rheometry indicated that the wall paste viscosity was inversely proportional to the shear rate. Viscosity ranking was Gel-Suc > Gel-PG-Suc > HI-CAP 100. Gel-Suc showed the highest elastic modulus ( $G'$ ) and viscous modulus ( $G''$  values), followed by Gel-PG-Suc and HI-CAP 100. Gel-Suc was associated with moderate quantities of broken microcapsules while HI-CAP 100 generated numerous microcapsules with characteristic dents generated during spray-drying.

### **Keywords:**

microcapsule; wall materials; rheological properties; morphology; particle size; spray-drying

[ [fulltext](#) ]

---

© 2011 [Czech Academy of Agricultural Sciences](#)