

Influence of Thickeners on the Fragmentation of solid by Mastication

著者名(日)	Atsuko Sagawa, Naoki Kobayashi, Hatsue Moritaka
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Influence of Thickeners on the Fragmentation of solid by MasticationAtsuko SAGAWA,^{1,3} Naoki KOBAYASHI,² Hatsue MORITAKA¹¹ Showa Women's University, ² Chuo University, ³ Tokyo Seiei College**Abstract**

In the aging society with increasing numbers of people with lowered masticatory and swallowing functions, it is important to develop foodstuffs with the ease of swallowing. In order to offer the easily swallowed food for people with lowered mastication and swallowing functions, it is essential to analyze the physical properties of food mass in the oral cavity at mastication. There is no study so far that investigates the effect of added thickener on fragmentation of solid. Therefore in this study, using as a model samples of solid (fish meat sausage) added thickeners (potato starch, guar gum, xanthan gum and deionized water), the food fragment size was analyzed by using a numerical method.

The destruction process of fish meat sausage with potato starch and water dispersion medium by chewing in the present samples is consistent with a log-normal distribution function. But, the fragment-size distribution of the 100 w/w% fish meat sausage, guar gum and xanthan gum samples was explained as a double-size-group structure, i.e., the smaller group fit the log-normal distribution, while the larger group behaved as the exponential distribution. In other words, it was suggested that the chewing of these solid samples involves both destruction affected by a past destruction history and random destruction not affected by any history.

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Anti-oxidant activities and polyphenol components of the lotus teas

Satoru WATANABE a*, Hiroko ARAKI a, Miyo ISOBE b, Satoshi KITAO b,

Toshio MORIKAWA c and Osamu MURAOKA c

a:Tokyo Seiei College, Department of Health Nutrition

b:Osaka Shoin Women's University, Graduate School of Human Science

c:Kinki University, Pharmaceutical Research and Technology Institute

Abstract

We measured some radical scavenging activities of the lotus (*Nelumbo nucifera Gaertn.*) teas, which are Renshin-cha(one kind(1)), Renka-cha(4), Hasunohana-cha(3) and Hasunoha-cha(3), and tried to identify polyphenol components contributing to these activities. The obtained results were as follows.

- 1) Hot-water extracts of the all lotus teas had DPPH-, peroxy-, superoxide anion- and hydroxy- radical scavenging activities. Renka-cha(4) and Hasunohana-cha(2) had high activities, however, Renshin-cha and Hasunoha-cha(3) had low. These activities had highly positive relationship with their polyphenol contents.
- 2) Renka-cha(4), which were mainly composed of green tea, had higher total amounts of catechins, but other lotus teas had lower. It was estimated that three chlorogenic acid isomers and *p*-coumaroylquinic acid were exist in Renka-cha(1), except four catechins, by LC-MS analysis. Hasunoha-cha(3) were from lotus leaf, which contained mainly isoquercitrin and astragaln. Components of Hasunohana-cha (lotus purple, yellow and blue flower) were in progress.