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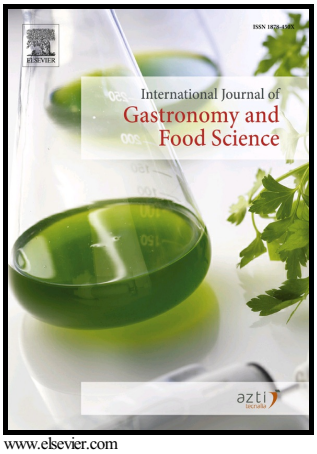

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Scientific Paper

The quest for umami: can sous vide contribute?

Mathias P. Clausen[1], Morten Christensen[1], Trine Hveisel Djurhuus[1], Lars Duelund[1], and Ole G. Mouritsen[2]

Abstract

Umami is the fifth basic taste that humans during evolution have been primed to seek in their diet because it signals protein-rich food and easily accessible amino acids. Umami is elicited by free glutamate and the sensation is enhanced in a synergetic fashion by free nucleotides, such as inosinate. The content of free glutamate in foodstuff can be increased by some cooking, ageing, fermentation, and conservation techniques, of which fermentation is the most powerful. Tenderization by sous vide has during the last decade become widely popular both in restaurants as well as the home kitchen. The question arises whether sous vide treatment of meat increases the umami potential by producing more glutamate. In a pilot study of sous vide preparation of beef tenderloin we have found somewhat surprisingly that this is not the case. Furthermore, an analysis of the texture of the meat showed that sous vide does not tenderize the tenderloin meat, but in fact make it slightly tougher at short preparation times.

Keywords: Umami; Glutamate; Meat; Sous vide; Texture

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Introduction

Our preferences for the various flavours of food, it be taste, aroma, or mouthfeel, are determined by a complex combination of physiology, culture, tradition, experiences,