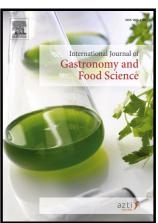
## Author's Accepted Manuscript

The quest for umami: can sous vide contribute?

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**ACCEPTED MANUSCRIPT** 

**Scientific Paper** 

The quest for umami: can sous vide contribute?

Mathias P. Clausen<sup>1</sup>, Morten Christensen<sup>1</sup>, Trine Hveisel Djurhuus<sup>1</sup>, Lars Duelund<sup>1</sup>, and

Ole G. Mouritsen<sup>2</sup>

**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

\*Corresponding author: ole.mouritsen@food.ku.dk

<sup>1</sup>Department of Chemical Engineering, Biotechnology and Environmental Technology,

University of Southern Denmark, 55 Campusvej, DK-5230 Odense M, Denmark

<sup>2</sup>Nordic Food Lab and Section for Design and Consumer Behaviour, Department of

Food Science, University of Copenhagen, 26 Rolighedsvej, DK-1958 Frederiksberg C,

Denmark

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,

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