

Title Onion pungency testing and consumer classification
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Abstract

The Australian mild onion industry lacks a reliable, cost-effective test for pungency. To guarantee that mild onions are not pungent, the development of a rapid and cost effective method for the assessment of onion pungency (pyruvate) is critical for the industry. An onion press was constructed at NSW DPI at the Wagga Agricultural Institute and was used in measuring onion pyruvate levels using the modified 'Schwimmer and Weston' method. This NATA accredited laboratory at NSW DPI measured over 1,500 onions for pyruvate and soluble solids content (SSC%) which were used to calibrate this to the Australian palate utilizing comprehensive taste panel comparisons. These trained and consumer panel assessments of raw onions were conducted at Food Science Australia in Sydney. The results show that trained panel could reliably and accurately perceive differences in pyruvate levels (pungency) between some different classes of onions based on their pyruvate level. Similarly the 100 untrained consumers could not detect differences in pungency between onions with the lower levels of pyruvate, but were able to reliably tell these onions from the higher levels of pyruvate. Conversely, the degree of consumer 'liking' of the different onions classes varied with perceived pungency. As expected, onions with the lower levels of pyruvate (less than $6 \mu\text{M}\cdot\text{mL}^{-1}$ pyruvate) were equally 'likable', with the more pungent onions equally 'un-likable'. The results will provide industry with a tool to consider the establishment of the mild onion industry in Australia. This project was funded by onion levies, facilitated by HAL in partnership with Onions Australia (HA project VN 04016).