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Functionality of wheat gluten proteins in relation to oil uptake, cooking quality and textural properties of instant noodles

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The importance of quantity and quality of wheat gluten proteins in influencing the oil uptake, cooking quality, textural properties and overall acceptability of instant noodles was analysed utilizing diverse wheat cultivars. Oil uptake and cooking time of noodles varied considerably from 15.4 to 22.7% and 2.0 to 4.0 min, respectively with protein content being the main factor responsible for this significant variation. The quality of gluten proteins was more important in determining noodle characteristics as compared to the qualitative factors wet and dry gluten contents. Dough strength parameters including dough development time, stability and dough softening were significantly linked to the instant noodle quality. Medium strong flours from wheat cultivars DBW 16, WH 542, WH 147 and WH 283 were most suitable for noodle preparation as the stronger flour samples of cultivars HI 977 and PBW 550 resulted into extra firm, over elastic and chewy noodles which was attributed to the extra strong dough characteristics, higher gluten index and R/E ratio, while lower Gli/Glu ratio of these cultivars. Gli/Glu ratio showed significant negative relationship with the cooking quality, textural properties and overall acceptability of noodles. The best noodle cultivars DBW 16 and WH 542 both had 5+10 glutenin subunits at *Glu-D1*, however, differed in subunits expressed at *Glu-A1* and *Glu-B1* loci. Wheat cultivars HW 2004 and C 306 with Null, 2+12 and 20 alleles expressed at *Glu-A1, B1* and *D1*, respectively were found to be unsuitable for instant noodle production due to excessive breakage during noodle processing along with higher oil uptake.

Biography

Neelam Gulia has completed her Masters course at the age of 23 years from Guru Jambheshwar University of Science and Technology, Hisar. She is pursuing PhD in Food Technology from Guru Jambheshwar University of Science and Technology, Hisar. She has published 10 papers in reputed journals and presently serving as a Teaching Associate at GJUS&T.

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