

UNDERSTANDING THE FUNCTIONALITY OF WHEAT HIGH MOLECULAR WEIGHT GLUTENIN SUBUNITS (HMW-GS) IN CHAPATI MAKING QUALITY

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In India over 200 wheat varieties have been released for commercial cultivation during last five decades. Out of 76 million tons of wheat produced annually, 60-70% of wheat is being consumed in form of wheat flour (Atta) for chapati (Indian unleavened flat bread). Chapati is the staple diet over two third population in Indian subcontinent. Majority of wheat varieties released for commercial cultivation was bred for resistance to abiotic and biotic stresses and also improving yield potential. These varieties are known to yield moderate to very good chapatis. However, the biochemical basis in wheat leading to good chapati quality characteristics is largely unknown. Forty five commercially released Indian wheat varieties were analysed for their qualitative and quantitative differences in high molecular weight glutenin subunits. These varieties have also been characterized for their dough and chapati quality attributes. Correlation between the differences in protein composition and dough, chapati quality characteristics revealed that the wheat varieties possessing HMW-GS, 1B20 were found to yield chapatis with better consumer acceptance. These observations have been validated by selectively isolating these proteins and reconstituting them to the base flour.