

Novel Triticin Protein in Wheat for Nutritional and Quality Enrichment

Sonia Goel*

*SGT University, Gurugram, India.

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ABSTRACT

Wheat is considered as one of the versatile food sources consumed worldwide. Wheat protein is the largest source of protein second to rice for fulfilling the nutritional requirement of the Indian population. Wheat proteins are limiting in essential amino acids like lysine, tryptophan and threonine which degrade its nutritional status and compelled researchers to explore modern biotechnology tools for enhancing wheat proteins for improved diet. A lesser known 'triplet' protein identified long back in wheat which was found to be homologues to Pea legume in and Oats seed storage proteins later named as Triticin. It is a minor storage protein of wheat endosperm, accounting for only 5% of the total seed protein and is considered to be nutritionally rich due to the presence of unique lysine- rich decapeptide repeat motif inserted in the hypervariable region of triticin gene. Triticin was considered as a potential target to enhance nutritional status of the wheat by using various molecular approaches like protein sequence modification, over expression of homologous genes, synthetic genes, and transfer and expression of heterologous genes. But this protein didn't get much attention even after its potential for wheat quality improvement. Recently triticin has been explored for its excellent potential for improving end product quality in wheat. It was found to enhance bread and chapatti making quality and nutritional status. Exploring more about this protein and using it in recent bread products can upgrade both the quality and nutritional status in today's diet and can be useful for combatting worldwide malnutrition.

Keywords: Wheat protein, Triticin, Product quality, Triplet protein

Corresponding author: Sonia Goel, SGT University, Gurugram, India, E-mail: soniagoeiari@gmail.com

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