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## **Effect of high electric field on secondary structures and functional properties of wheat gluten protein**

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**ABSTRACT** Nutritional and organoleptic properties of food are highly dependent on the structure and interactions of constituting biomolecules such as proteins and polysaccharides. Increasing application of novel food processing techniques including pulsed electric field, microwave, radio-frequency and static high electric field requires thorough study of their interactions with food biomolecules to gain an insight on their influence on structure and function of biomolecules. Proteins play a fundamental role in human biochemistry and are an important constituent of food. Their functional properties depends directly on their structure and any external stress imposed by presence of electromagnetic fields or by exposure to high temperature can potentially denature it. Several food proteins are beneficial for human health but some create uncomfortable allergic reactions after consumption. Gluten is one such protein composite found in foods processed from wheat and other grain species. In the present study we intend to subject wheat gluten protein to external static high electric field and evaluate its effect on the structure and functional properties of the protein. We will utilize Fourier transform infrared (FTIR) spectroscopy to gain insight on interaction of high electric field with gluten secondary structures. This study will provide us with the base to evaluate application of high electric field to reduce food allergenicity.

**Keywords:** High electric field, gluten protein, secondary structure, FTIR, food allergenicity