

밀의 Waxy Protein에 특이한 Polyclonal Antibody의 생산 및 검정

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Production and Identification of Anti-Waxy Polyclonal Antibodies(Anti-waxy PAb) in Wheat

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1. Objectives

The objectives of this research are to produce and identify polyclonal antibodies specific to waxy protein isoforms, which are responsible for the synthesis of amylose fraction of starch. In addition to providing biochemical genetic information, this polyclonal antibody could be used to analyze wheats with different waxy protein isoformers.

2. Materials and Methods

Plant materials: "Alchanmil", "Urimil" and wheat lines with different genetic background on proteins.

Antibody production: Waxy proteins from wheat flour were fractionated by SDS-PAGE and eluted from the gel. Rabbit was injected with waxy protein emulsion for producing anti-waxy PAb. Immunoblotting and titer test were conducted for the characterization of anti-waxy PAb.

3. Results and Discussion

1. Produced anti-waxy polyclonal antibody was identified as specifically bound to waxy protein by using immunoblotting assay.

2. High coefficient of determination($r^2=0.98$) was obtained from antigen ranges between $1/5^2$ - $1/5^5$ at antibody dilution of 1/100 and 1/200 by using ELISA.

3. We could able to measure quantity of waxy proteins and analyze wheats with different genetic background on waxy proteins by using anti-waxy polyclonal antibody(anti-waxy PAb).

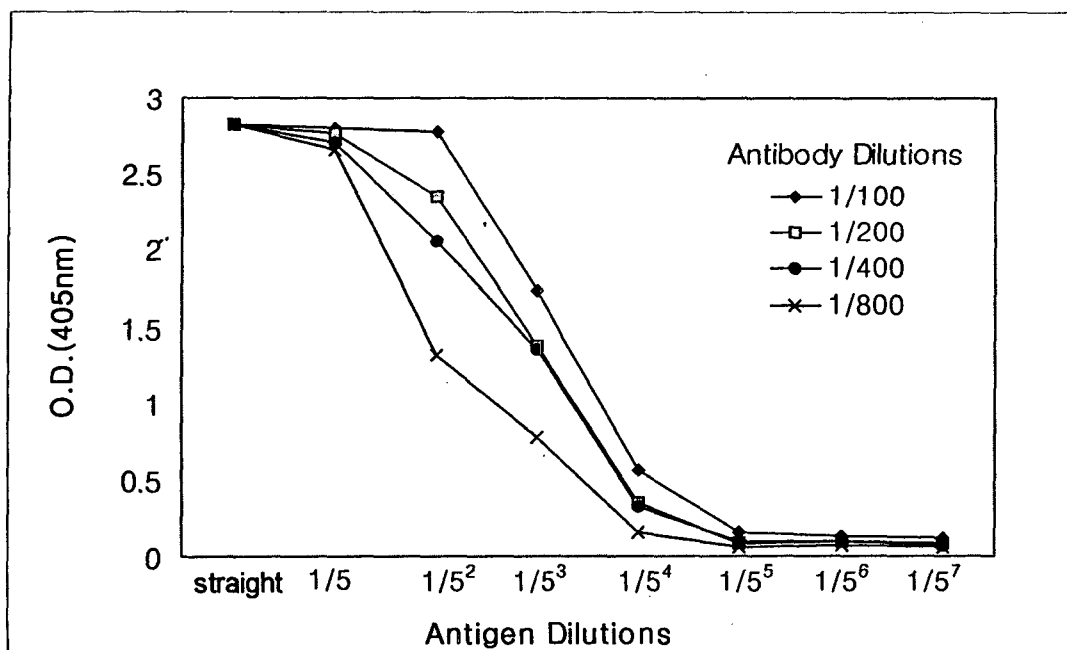


Fig. 1. Binding of produced polyclonal antibody to waxy protein in wheat.

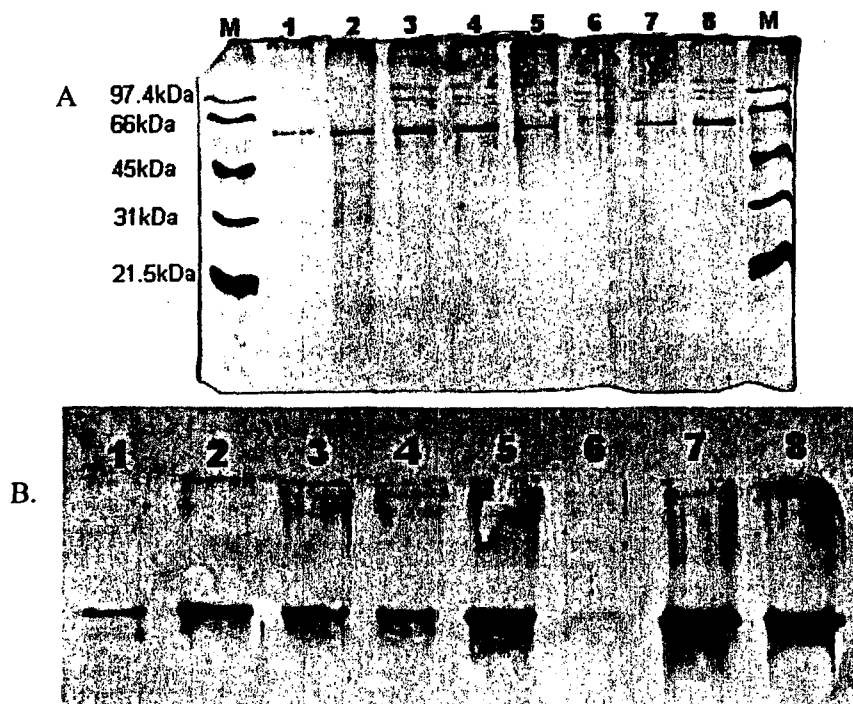


Fig. A. SDS-PAGE of waxy proteins in Alchanmil, Urimil and several waxy mutant wheat lines. Lane 1: "Baihuo", lane 2: "Suwon252", lane 3-4: Alchanmil, lane 5: "Kanto107", lane 6: "Waxy wheeat", lane 7: "Norin67" and lane 8: Urimil. All waxy proteins were extracted by using 10% SDS containing buffer.

Fig. B. Immunoblotting of waxy proteins in Alchanmil, Urimil and several waxy mutant lines. Lane numbers and sources are same as Fig. A.