MEASUREMENT OF INDOLYL-3-ACETIC ACID AND GIBBERELLIN LEVELS AT VARIOUS GRAIN TYPE AND POSITION WITHIN DEVELOPING GRAINS OF WHEAT

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Abstract

Grain growth rate (GGR), gibberellin and indolyl-3-acetic acid (IAA) levels were studied at different grain type and position within developing grains of wheat (Triticum aestivum L. var. Bahar). Main spikes were divided into three grain positions included proximal, middle, and distal regions, and further into two grain types included basal and apical grains. Grain dry matter accumulation, gibberellins including GA_1, GA_3 and GA_4,and IAA levels were determined in ten labeled spikes which sampled five times, seven days interval started from seventh day after anthesis (DAA) up to 30^{th} DAA, and also in maturity. Gibberellins and IAA contents increased until 16^{th} and 23^{st} DAA, respectively. The maximum level of grain growth rate (GGR) was observed at 16^{th} DAA. Furthermore, the differences in both gibberellins and IAA contents, among spikelets in different regions of the spike, and also among grains within a spikelet were correlated with the differences in dry matter accumulation. The results suggest that both gibberellins and IAA levels play an important role in regulating grain filling pattern.

Key words: Gibberellins; IAA; spike; grain development; wheat