ABSTRACT: To determine the most effective dose of arabinogalactan-protein (AGP) in regeneration medium, mature embryos of genotypes in three different ploidy levels (Triticum aestivum L. cv. Ikizce-96, Triticum durum Desf. cv. Mirzabey and Hordeum vulgare L. cv. Tokak) were used to establish an efficient plant regeneration system for cereals. Percentage of callus production, capacity of regeneration were calculated, and also culture effect, root, stem, and total plant length of regenerant plants were observed in six different regeneration media (MS control, MS+2, 5, 7, 10, 12 mg L-1 AGP) in these three different genotypes. According to the results, the highest amount of callus production was found in Ikizce-96 as 93.75% using 5 mg L-1 dicamba and 1 mg L-1 kinetin in induction medium. However, the most improved callus was observed in diploid barley Tokak as 179.95 mg in weight and 6.18 mm in diameter, respectively. The highest regeneration capacity was observed in the dose of 5 mg L-1 AGP in MS of all the genotypes and hexaploid wheat Ikizce-96 gave the best results with the highest regeneration capacity and culture effects (94.86 and 92.5%) in the same dose of AGP. These results indicated that effective dose of AGP in regeneration medium increase plant regeneration in calli derived from cereal mature embryos.

KEY WORDS: arabinogalactan-protein (AGP), cereal, mature embryo, plant regeneration, tissue culture