ABSTRACT

**Neama Ibrahim Ismail Mohamed Attalla: Marker-Assisted Selection for Some Economic Traits In Wheat (*Triticum aestivum* L*.*). Unpublished Master of Science Thesis, Department of Botany, Faculty of Science, Benha University, 2018.**

Wheat is one of the most important crops for food consumption and livestock feed. Earliness is very important trait for the adaptation of wheat to environmental conditions and the achievement of high grain yield. In this experimental study, the objective was to obtain molecular markers associated with earliness for wheat with bulked segregant analysis (BSA) using a total of 53 primers. Eighteen arbitrary randomly amplified polymorphic DNA (RAPD) primers generated 257 fragments with 51.6% polymorphism, revealed a total of twenty six markers obtained for earliness. Eleven were regarded as positive marker for earliness in most of earliest group and fifteen as negative markers. Twelve Inter simple sequences repeat (ISSR) primers, exhibited polymorphic patterns and a total of 141 fragments were obtained with 26.9% polymorphism. Twelve fragments were regarded as molecular markers associated earliness, out of them; five were positive and seven were negative. Twenty two pairs of SSRs primers gave 117 fragments with 48.7% polymorphism percentage. Eleven SSR primers succeeded in producing 13 molecular markers able to distinguish the earliest group from the latest one, out of them seven were associated with earliness were considered as positive markers, while five negative markers appeared in latest group. In summary, 50 fragments were regarded as molecular markers for earliness trait, out of them 23 were considered as positive which appeared in most of earliest group and 27 were regarded as negative ones. In conclusion, the identified markers through BSA technique could be used in breeding programs to select the individuals with the fewest number of days to heading without waiting for field evaluation and could be used as markers to assist selection for earliness in breeding programs.