

SUMMARY

Gita Puspita Purwanti. 0710470004. Genetic Diversity of Sunflower (*Helianthus annuus* L.). Lecture Ir. Respatijarti, MS. and Prof. Dr. Ir. Lita Soetopo.

Sunflower (*Helianthus annuus* L.) is a plant producing vegetable oils fourth world after soybeans, palm and canola. Vegetable oils are used as food ingredients (butter, salad oil, cooking oil, margarine) and used in non food industries (biodiesel and oil lubrication) (Fernandez *et al.*, 2007). Sunflowers also have as an ornamental plant. The plant originated in North America it has 67 species of sunflower known only 17 of which are mainly cultivated as an ornamental plant. Sunflower is an important commercial crops, in addition to being produced by American for cut flowers are also commonly used in landscaping (landscape) as a plant or edge protectors while in Europe has been popular as a potted plant (Khotimah, 2007).

The variety of a sunflower plant is so wide that is affected by several factors including genetic and environment. To find out more about the genetic diversity of sunflower accessions required further analysis. Heritability value is relating to the genetic diversity of populations, then this analysis more means in plants that are almost always crossing crop genotype among members of different plant population (Poespodarsono, 1988). This research is expected to be the beginning of sunflower research in Indonesia which has the purpose to know the genetic diversity of 10 sunflowers accessions (*Helianthus annuus* L.) and expected of those goals can be used as a source of information on sunflower germplasm to be developed for the next breeding program.

The research was conducted in the University of Brawijaya Experiment, in the village of Jatikerto – Kepanjen, Malang. The location of the research at an elevation of 330 m above sea level, with an average temperature of 27-29°C and precipitation 279-45 mm/month. The research was conducted from February to June 2011. Tools used in this research, among others; stationery, a ruler, tape measure, scales, marker, caliper, Raphia, camera strap, signage, labels, UPOV guidelines and IBPGR. The materials used in this study, among others; NPK compound fertilizer, water, insecticides, fungicides and seed 10 accession sunflower which is a collection of BALITTAS, Malang. The research design used is Randomized design with 3 replicated with 16 plants each accession at each replicated of the plot. Observations include the quantitative characters and qualitative characters in accordance with UPOV and IBPGR. Quantitative Data for diversity among accessions analyzed using Analysis of Variance (ANOVA) as well as the computed value of the coefficient, the coefficient of genetic diversity and value the diversity of phenotypes, Heritability value. Qualitative Data is analyzed using Cluster analysis with a view dendrogram.

The results of research showing the diversity of the 10 accession sunflowers on plant height (cm), diameter of the stem (cm), number of leaf, flowering age (day after transplanting), age of harvest (day after transplanting), diameter of

flower (cm) and seed weight per plant (g) showed values of genetic variability is narrow and have heritability values are medium to high. On the qualitative data, there is diversity shown by leaf shape, leaf blistering, leaf : shape of distal part, color of *disk*, anthosianin on *disk*, shape of *ray*, shape of *bract*, head attitude, head shape, type of branching, hair of stem, shape of seed and color of seed. Based on the results of research, a character with a value of genetic diversity and heritabilitas high on plant height (cm), number of leaf, flowering age (day after transplanting), the age harvest (day after transplanting), flower diameter (cm), weight of seed per plant (g) and the percentage of oil (%) can be used as selection criteria in Sunflower accession for the next breeding program.

