

SUMMARY

PUPUT PELITA PUTRI. 125040202111003. Relationship of Red Durian Banyuwangi with Alleged Parent based on Morphology and Isoenzim Analysis. Supervisor by Prof. Ir. Sumeru Ashari, M.Agr. Sc.,Ph.D. and Niken Kendarini, SP.,M.Si.

Indonesia is the high biodiversity country because it has wet tropical forest areas to the level of high biodiversity in the world. Durian is one of the tropical fruit has a high levels of biodiversity. Red durian Banyuwangi is one of germplasm in Banyuwangi that has a characteristic in the flesh color that was red. According to Rusmiati *et al.*, (2013), red durian Banyuwangi is alleged as the type of derived from a self pollination between the *Durio zibethinus* and the *Durio graveolens* (a interspecific pollination). There where some ways to see characteristic and variety of plants, that was morphology and molecular marker. One of the effort to develop the genetic markers of germplasm collection is by developing the genetic markers of germplasm collection biochemically by using the protein marker supported by morphology marker (Bansir *et al.*, 2010). Based on Widiyanti *et al.*, (2006), one of the approaches to indentify the genetic range of a plant is by using banding pattern isoenzim. In the present study, there were six types of relationship of red durian Banyuwangi on suspected the elders; *D. zibethinus* white and yellow, *D. kutejensis* and *D. graveolens*. The alleged parent of red durian Banyuwangi was based on the fruit's flesh color of red durian that had been produced. The hypothesis of the current study is from several red durian Banyuwangi, one or more has the level of the similarities with the alleged elders of durian red banyuwangi.

This study was conducted on the April until June 2016. The sample was taken in Banyuwangi. Isoenzim analysis was conducted in LSIH, MIPA Universitas Brawijaya. The material that had been used was the leaves samples of durian from 10 types; that was 6 categories of red duran Banyuwangi (Dubang, Wayut, Musang Merah, Tretes Benel, Red King and Balqis) and 4 types of durian alleged elders (*D. zibethinus* white and yellow, *D. kutejensis* and *D. graveolens*). While the chemical that had been used were buffer extract, liquid nitrogen, gel polyakrylamide (separating gel 7% and stacking gel 5%), *Redusing Sample Buffer* (RSB), aquades, aluminum foil paper, and esterase enzyme (EST) and peroxidase (PER).

Beside that the researcher did qualitative and quantitative observation to analyze the morphology of leaves. Morphological leaves analysis qualitative based on the guidance book of biodiversity international descriptors for durian (*D. zibethinus* Murr.). While for the morphology quantitative analysis is performed by measuring length and width of durian's leave with a ruler. The data analysis was used a computer program of NTYS version 2.02 through SIMQUAL procedure (*Similarity for Qualitative Data*) and continued with clustering analysis by using SAHN procedure (*Sequential Agglomerative Hierarical Nested Cluster Analysis*) (Rohlf, 2004).

Based on the results of dendogram by using an esterase enzyme, there were three cluster formed at the similarity coefisien 60%. The first cluster, namely *D. graveolens*, *D. kutejensis*, Dubang, Wayut, Musang Merah, and Tretes Benel who clumped with alleged to have the genetic similarities that was 100 %. The

second cluster that was *D. zibethinus* yellow and white alleged to have the genetic similarities that was 80%. The third cluster, Red king and Balqis alleged having the genetic similarities 80%.

Based on the results of dendogram by using a peroxidase enzyme, there were two cluster that formed in the similarities coefficient 60%. The first cluster namely *D. graveolens*, *D. kutejensis*, Dubang, Wayut and Tretes Benel . This cluster was divided into the similarities coefficient 80% . *D. graveolens* and *D. kutejensis* who clumped alleged to have the genetic similarities that was 80%. While for Dubang, Wayut, and Tretes Benel alleged to have the genetic similarities amount of 100%. The second cluster, *D. zibethinus* yellow and white, Musang Merah, Red King and Balqis. This cluster was divided into the similarities coefficient 80%. *D. zibethinus* yellow and white clumped by themselves that alleged having the genetic similarities amount of 80%. While for Musang Merah, Red King and Balqis, alleged to have the genetic similarities amount of 100%.

Based on the results of dendogram in the characters of qualitative morphology of leaves there was one cluster that formed in the similarities coefficient that was 78%. *D. zibethinus* yellow, Tretes Benel and Red King alleged to have the genetic similarities amount of 100%. Beside that, for *D. graveolens*, *D. kutejensis*, *D. zibethinus* white, Dubang, Wayut, Musang Merah and Balqis were clumped alleged to have the similarities coefficient amount of 78%.

