

## VARIABILITAS DAN KLASIFIKASI INTRASPESES BUAH MERAH (*Pandanus conoideus* Lam.) DI PEGUNUNGAN ARFAK PAPUA BARAT BERDASARKAN KARAKTER MORFOLOGIS DAN MOLEKULAR

Johanis Paulus Kilmaskossu  
13/354174/PBI/1171

### INTISARI

Buah merah (*Pandanus conoideus* Lam.) merupakan salah satu dari genus *Pandanus* yang penting dalam kehidupan masyarakat di daerah dataran tinggi Papua. Penelitian ini bertujuan untuk menentukan seberapa besar variasi morfologis dan distribusi lokal masing-masing variasi buah merah serta jauh-dekatnya hubungan fenetik variant satu dengan yang lainnya berdasarkan karakter morfologis dan karakter molekular dengan analisis (RAPD) di Pegunungan Arfak Papua Barat. Data morfologis dianalisis secara deskriptif untuk mendapatkan variasi karakter pada masing-masing varian dan data skoring dianalisis secara numerik untuk mendapatkan *present* dan *absent* karakter baik *biner* ataupun multistate dilakukan berdasarkan pada organ akar, batang, daun dan buah yang selanjutnya distandarisasi. Hasil standarisasi dihitung indeks similaritas antara OTU's, kemudian dilakukan klustering untuk mendapatkan dendogram. Isolasi DNA total daun no 2 atau 3 dari ujung, menggunakan metode CTAB. Kemurnian DNA ditentukan dengan spektrofotometer. Data molekular RAPD dianalisis berdasarkan kemunculan fragmen DNA polimorfik hasil elektroforensis menggunakan primer OPA-1, OPA-8, OPA-15, OPD-20, dan OPG-18. Skoring data PCR-RAPD berdasarkan ada tidaknya fragmen DNA, kemudian dihitung indeks similaritas. Berdasarkan matriks indeks similaritas dilakukan analisis kluster dengan metode (UPGMA) dengan bantuan (MVSP) versi 3.1.pc menghasilkan sebuah dendogram. Karakter morfologis buah merah hasil eksplorasi menunjukkan sebanyak 32 aksesori asal dataran rendah dan pegunungan menengah di daerah Pegunungan Arfak. Berdasarkan karakter morfologis maka kultivar buah merah asal dataran rendah dan pegunungan bawah memiliki hubungan kekerabatan dekat dan membentuk 7 kelompok. 12 aksesori buah merah asal dataran rendah berdasarkan analisis kluster morfologis menunjukkan diantara kultivar tersebut berkerabat dekat dan membentuk 5 kelompok. Hasil analisis kluster berdasarkan morfologis dan molekular terhadap kultivar buah merah asal dataran rendah dinyatakan tidak kongruen.

**Kata kunci:** *Pandanus conoideus*, Pegunungan Arfak, morfologis, PCR-RAPD.

**VARIABILITY AND INTRASPEKIES CLASSIFICATION OF RED FRUIT  
(*Pandanus conoideus* Lam.) IN THE ARFAK MOUNTAINS OF WEST  
PAPUA BASED ON MORPHOLOGICAL AND MOLECULAR  
CHARACTERS**

Johanis Paulus Kilmaskossu  
13/354174/PBI/1171

**ABSTRACT**

Red fruit (*Pandanus conoideus* Lam.) is one of the genus *Pandanus* that are important in people's lives in the highlands of Papua. This study aims to determine how is the morphological variation and local distribution of each of the various Red fruit plants in the Arfak Mountains of West Papua as well as the distance of relationship of the phenetic variant with one another based on morphological and molecular characters using RAPD analysis. Morphological data were analyzed descriptively to obtain the variation of characters on each variant and data score was analyzed numerically to obtain the presence and absence of character, whether binary or multistate, which was done based on organs such as roots, stems, leaves and fruits which is further standardized. The result of the standardization was used to calculate the similarity index between OTU's, further a clustering was done to produce a dendrogram. Isolation of the DNA total from the second and third leaves from the top of the plant was done using the CTAB method. The purity of DNA was determined using a spectrophotometer. RAPD molecular data were analyzed by the emergence of polymorphic fragments after electrophoresis using primer OPA-1, OPA-8, OPA-15, OPD-20, and OPG-18. PCR-RAPD data score was based on the presence or absence of fragments, and then calculated the index of similarity. Based on the index of similarity matrix a cluster analysis were carried with (UPGMA) by the help of (MVSP) version 3.1.pc to produce a dendrogram. The results of the exploration of the morphological characters of red fruit indicated a total of 32 cultivars originated from the plains and mountains in the mid Arfak Highlands. Based on the morphological characters, the red fruit cultivars originated from the lowland and lower montane have a close relationship and formed 7 groups. While 12 cultivars of red fruit originated from the lowland showed a close relationship between the cultivars based on morphological cluster analysis and form 5 groups. The results of cluster analysis based on morphological and molecular characters of red fruit from the lowland is said incongruent.

**Keywords:** *Pandanus conoideus*, Arfak Mountains, morphological, PCR-RAPD.