ABSTRACT

KURNIA NURAENI. Selection of Morphological Characters for Setting Up Asterinaceae Identification Key Using Principal Component Analysis. Supervised by SRI NURDIATI and GAYUH RAHAYU.

Characters of each fungal species may show similarities to others, such that they are related to each other. In this case, the characters of 90 species of *Asterina*, 2 species of *Asterolibertia*, 7 species of *Lembosia*, and 2 species of *Parasterinella* (Asterinaceae) were studied. These species are delimited based on 116 morphological characters with three different character states (71 nominal, 33 ordinal, and 12 numerical). Recognizing each species using all those characters is rather difficult. Therefore, selection of representative characters is needed. Selection was done by reducing the number of features to the minimum without losing the essential information using Principal Component Analysis (PCA) approach. Eventhough PCA is usually applied for one type of data, in this research PCA was experimented for mixed data types. The purpose was to select the most representative morphological traits. Selected traits were then used as parameters in the construction of interactive Asterinaceae identification system using the principal component scores. The result of this research shows that PCA can be used to reduce the traits with different data types. Its 23 characters out of 116 characters were selected. The accuracy of the identification system based on those 23 traits was 100%, as all Asterinaceae species can be identified.

**Keywords:** Asterinaceae, Character Selection, Identification Key, Important Characters, Principal Component Analysis.