

**KLASIFIKASI TANAMAN BIDARA BERDASARKAN
TEKSTUR DAUN MENGGUNAKAN METODE *GRAY LEVEL
CO-OCCURANCE MATRIX (GLCM)* DAN ALGORITMA
*SUPPORT VECTOR MACHINE (SVM)***

ADRIAN BUDI PRAWIRA

ABSTRAK

Bidara merupakan sejenis tanaman penghasil buah yang tumbuh di daerah kering. Berdasarkan spesiesnya, terdapat empat jenis tanaman bidara yang tersebar di beberapa tempat, yaitu Bidara Arab (*Ziziphus spina-christi*), Bidara Upas (*Merremia mammosa Hall.f.*), Bidara Cina (*Ziziphus mauritiana Lam.*), dan Bidara Laut (*Strychnos lucida R.Br.*). Banyak masyarakat yang mencari tanaman ini untuk dibudidayakan, konsumsi sehari-hari, serta diperjualbelikan untuk pengobatan. Namun, masih banyak masyarakat yang kurang mendapat informasi mengenai cara membedakan jenis spesies tanaman ini. Dengan adanya masalah tersebut, dibutuhkan solusi agar dapat memperkecil tingkat kesalahan dalam membedakan jenis spesies pada tanaman bidara. Penggunaan pengolahan citra dapat membantu dalam mengamati tekstur dari daun bidara. Pada penelitian ini akan dibuat sebuah model klasifikasi yang berfungsi untuk membedakan jenis dari tanaman bidara menggunakan algoritma *Support Vector Machine*. Sedangkan ekstraksi ciri tekstur pada daun bidara akan diamati menggunakan metode *Gray Level Co-occurrence Matrix*. Hasil penelitian yang telah dilakukan menghasilkan performa yang tidak mengecewakan dalam pengenalan tanaman bidara. Dengan penggunaan *kernel Polynomial Quadratic SVM*, hasil rata-rata terbaik yang didapat yaitu memiliki akurasi sebesar 84%, presisi sebesar 92%, dan *recall* sebesar 79,67%.

Kata kunci: tanaman bidara, daun bidara, *Gray Level Co-occurrence Matrix*, *Support Vector Machine*.

**CLASSIFICATION OF BIDARA PLANTS BASED ON LEAF
TEXTURE USING THE GRAY LEVEL CO-OCCURRENCE
MATRIX (GLCM) METHOD AND SUPPORT VECTOR
MACHINE (SVM) ALGORITHM**

ADRIAN BUDI PRAWIRA

ABSTRACT

*Bidara is a type of fruit-producing plant that grows in dry areas. Based on the species, there are four types of plants bidara scattered in several places, namely the Bidara Arab (*Ziziphus spina- christi*), Bidara Upas (*Merremia mammosa* Hall.f.), Chinese Bidara (*Ziziphus mauritiana* Lam.), and Sea Bidara (*Strychnos lucida* R.Br.). Many people are looking for this plant to be cultivated, for daily consumption, and traded for treatment. However, there are still many people who are not well informed about how to distinguish between these plant species. With this problem, a solution is needed in order to minimize the error rate in distinguishing the types of species in bidara plants. The use of image processing can help in observing the texture of the leaves of bidara. In this study, a classification model will be made which functions to distinguish the types of bidara plants using the Support Vector Machine algorithm. Meanwhile, the extraction of texture features on bidara leaves will be observed using the Gray Level Co-occurrence Matrix method. The results of the research that have been carried out have produced a performance that does not disappoint in the detection of bidara plants. With the use of the Polynomial Quadratic SVM kernel, the best average obtained results were 84% accuracy, 92% precision, and 79.67% recall.*

Keywords: bidara plants, bidara leaves, Gray Level Co- occurrence Matrix, Support Vector Machine.