ABSTRACT

Cholesterol is a waxy lump of fat that forms in the liver. Conditions where the amount of cholesterol in the human body exceeds the normal limit of < 200mg. If cholesterol levels in humans are not normal, it will lead to serious illnesses such as heart attacks and strokes. The level of excess cholesterol according to several studies can be detected by looking at the gray circle in the iris (Arcus Senilis). The process of checking cholesterol levels requires a short amount of time, therefore Iridology can be used as an alternative to analyzing the disease by looking at the pattern of iris patterns.

In this study, the authors designed a system that can detect the iris image to determine levels of excess cholesterol and then extract features using the Gray Level Co-Occurrence Matrix (GLCM) method and are classified by the Decision Tree method. Gray Level Co-Occurrence Matrix (GLCM) is a method used to analyze textures that are formed from images in pixels that are paired with a certain intensity. On the other hand Decision Tree is included in the classification method, the result of which will be a tree structure where part of the tree nodes will present the attributes that have been tested.

The results of testing the system using the Matlab software application with the Gray Level Co-Occurrence Matrix (GLCM) and Decision Tree methods can support excess cholesterol levels associated with three classes namely at risk of cholesterol, cholesterol, and non-cholesterol with high levels of 93.3% results with computation time is 0.0363 seconds when using 120 data training data and 30 test data. The parameters used are the features of conversion, energy and homogeneity, with pixel distance (d) = 1, and quantization level (n) = 8, when Direction / angle = 0°.

Keywords: Cholesterol, Iris Eye, Iridology, GLCM, Decision Tree