



## CLASSIFICATION BY ARTIFICIAL NEURAL NETWORK FOR MUSHROOM COLOR CHANGING UNDER EFFECT UV-A IRRADIATION

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**ABSTRACT**

In this paper, the classification of the effect of irradiation with the number of different UV-A lamps (0.20, 40, 60 and lumens) on the variation of  $L^*$ ,  $a^*$  and  $b^*$  was investigated using input data  $L^*$ ,  $a^*$  and  $b^*$  with the artificial neural network. In this experiment, to the classification two networks of radial basic and multi-layered perceptron functionalities with the hyperbolic tangent activation function in one and two hidden layers were used. According to the results obtained, the best value for R and Percent Correct for the number of lamp 0 (Percent Correct =  $100 - R^2 = 0.652$ , lamp number 20 (Percent Correct =  $100 - R^2 = 9999$ ), for lamp number 40 (Percent Correct =  $100 - R^2 = 0.652$ ) and for lamp number 60 were also (Percent Correct =  $100 - R^2 = 0.9994$ ). Also, the highest numbers of correctly detected data for the number of lamp in the number of 20 were observed in the MLP network, and this network has been able to categorize 100% for the total number of 0, 20, 40, and 60 correctly. Generally, the MLP neural network is better than the RBF network, and the network with 4 and 8 neurons in the hidden layer is appropriate, and the network with 1 layer and 2 layers has acceptable accuracy for classification.

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