



### ABSTRACT

**BACKGROUND:** Digital image analysis has an important role in geographical provenance of grains, as it can provide parameters of size, shape and color, which are important quality parameters for the design of engineering processes such as drying and milling of grains. In this study, digital image analysis was used to classify nine rice cultivars based on different morphometric parameters using the three sides of the grain (lateral, ventral and axial), Feret diameter, and 10 different form factors and color parameters (CIE  $L^*$ ,  $a^*$  and  $b^*$ ).

**RESULTS:** Result of principal component analysis was an equation with seven variables (area, perimeter, length, width, thickness, sphericity and color), which was useful for distinguishing between nine different cultivars. The morphometric and color parameters for the Mor A-98 and Mor A-92 varieties showed they had 88% similarity. The variability was expressed with a confidence of 95%.

**CONCLUSION:** Multivariate analysis indicated that the lateral side is the most sensitive for the classification of Mexican rice grains because of its color and morphometric characteristics. These results showed the application of image analysis for the future classifications of grains. Copyright © 2012 Society of Chemical Industry

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