

Current Status of Computational Intelligence Applications in Dermatological Clinical Practice

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ABSTRACT

Background: The yeast infections are increasingly frequent and the correct diagnosis consists of the identification of the yeast fungus, which in our case we are going to refer to the different species of *Candida*. The prescription of a broad-spectrum antifungal without taking into account the etiological agent, leads to an increase in the resistance to these treatments.

Objective: The objective of this work is to differentiate *Candida albicans* from other *Candida* species (*Candida* spp.) By means of digital images obtained from the optical microscope.

Material and Methods: It has reviewed about 100 photographs from patients in our consultations. In this study we will use the microscopic images of the *Candida* variety to be processed later with the Octave programming language and its image processing package (image-2.8.0).

Results and Discussion: This system is able to differentiate *Candida albicans* from the other varieties of *Candida* such as *C. parapsilosis*, *C. krusei*, and *C. kefyr* with accuracy. The candida identifier application, which was designed and programmed in Octave, allows identification of candidaspecies by locating certain geometric descriptors, such as the centroid and the surfaces of circular objects within the images. The program was highly effective for the diagnosis of *Candida* spp. So, we got a sensitivity and specificity above 90% with the images used.

Conclusion: The results that we obtain from the *Candida* spp. identifier system. that opens the way to be able to work with images obtained from the optical microscope.

Keywords: *Candida* spp, Octave, Image processing, Candydos program, Computational intelligence, Clinical practice, *Candida* infections

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