PARASITODEX: A USER-FRIENDLY APPLICATION FOR THE IDENTIFICATION OF PROTOZOAN AND HELMINTH SPECIES IN MEDICAL PARASITOLOGY

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Parasite identification is a challenge in teaching medical parasitology. Traditionally, practical classes are based on microscopic observation of protozoans and helminths. Therefore, it is important to develop applications for parasite identification. We have developed an application to facilitate the recognition of protozoan and helminth species of interest in medical parasitology. A database of parasite morphological information was organized in Excel. Images were photographed at the Laboratory of Medical Parasitology and Vector Biology, Universidade de Brasília; other images were taken from books and identification guides. App development followed the method described for VetorDex. The database contained 15 species of helminths and 17 species of protozoa. The first question determines the origin of the sample (fecal, blood or urogenital). If fecal samples are selected, the app directs you to protozoa or helminths. The shape, size and number of nuclei of the structures are displayed to determine the protozoan species (*Entamoeba* and other amoebas, *Cystoisospora*, *Balantidium* and *Giardia lamblia*). For helminths, the app first separates eggs and larvae. Eggs are differentiated by shape, size and membrane characteristics (*Ascaris*, *Trichuris*, *Enterobius*), while larvae are differentiated by buccal vestibule and tail (*Strongyloides* and Ancylostomidae). Intracellular blood parasites (*Toxoplasma*, *Leishmania/Trypanosoma*, and *Plasmodium*) were classified according to organelle and nuclear characteristics. Extracellular blood parasites were classified according to the position of the nucleus/kinetoplast (*T. cruzi*, *T. rangeli*, *Leishmania*) and the presence of a sheath (*Wuchereria bancrofti*). For urogenital specimens, the system offers a single option (*Trichomonas vaginalis*). Once validated, ParasitoDex will be able to assist in the morphological identification of protozoa and helminths, making it easier for students to identify these parasites.

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