

## **Lutzodex<sup>tm</sup> – android mobile application for identification of Brazilian sand flies (diptera: phlebotominae)**

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phlebotomine sand flies are small insects included in the subfamily phlebotominae. There are currently 1,002 known species worldwide, 530 of which occur in the Americas. to date, 277 (53%) have been recorded in brazil that has been largely identified using taxonomic proposals of young & Duncan (1994) and Galati (2003). leishmaniasis control program from the brazilian ministry of health of brazil adopted the latter classification into the routine activities performed by the local of secretariats of health that is reviewed annually. the two classifications differ at the levels of genus and subgenus. taxonomic keys are used to identify specimens at the species level based on a set of characteristics. dichotomous and pictorial keys are the conventional and most widespread of the identification tools available. some identification keys rely on what is known as cybertaxonomy, an interactive method which has been said to offer advantages when working with large taxa such as sand flies. It is thought that this method reduces the laborious procedures required for species identification. This study proposes the first cybertaxonomy tool for the identification of sand fly species recorded in Brazil using an android mobile application, or app. then, an identification key for male and female sand flies was made observing the above-mentioned classifications and assaying slides recorded. Morphological characters were compiled into a tab-delimited file in Microsoft excel. Lines were used for the species and columns were used to organize the information on each species recorded: sex, morphological and morphometrical characteristics, geographical distribution, medical importance, descriptors, and year of description. The app was developed using android studio software, version 1.5.1 and using a library developed by google with java, version 8 as the original language. The app, named Lutzodex<sup>tm</sup>, received information included in the database with morphological characters. The app presents seven icons on the main menu: 1) search, which is used to start the identification process; 2) morphological characteristics, which includes a general overview of the head, thorax, and male and female genitalia; 3) possible species, an option which can be accessed during the identification process; 4) recent findings, an option which allows the user to retrace his steps in the identification process; 5) reset search, a selection which restarts the identification process; 6) contact, the item which includes the names and e-mail addresses of the developers; and 7) references, a list of the main references and figures used to create the key. Lutzodex<sup>TM</sup> is registered by the brazilian national institute of industrial property (INPI) under number

2377, page 372. The app and is available for free in both english and portuguese in the google play store at [https://play.google.com/store/apps/details?id=max.com.lutzodex&hl=pt\\_br](https://play.google.com/store/apps/details?id=max.com.lutzodex&hl=pt_br).

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