1. PROJECT

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Title: House dust mites and their genetic systems

Dates: January 2015 – June 2018

Funding organisation: N/A

Grant no.: N/A

2. DATASET

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Title: Biogeographical distribution of house dust mites: database from the literature

Description: There has been a multitude of research into mite fauna with focus on the medical and economic implications of these species, but there is not a recent comprehensive report of all indoor house dust mite fauna worldwide. 347 articles from 1950 to the beginning of 2017 available in the United Kingdom were examined. Only mites which were collected from a location where people were living (ie. sleeping and eating on a regular basis), as well as clothing were included. Mites identified from other indoor locations, from human sputum after ingestion, or following an allergic reaction or anaphylactic shock were excluded. Specimens which were morphologically identified, as opposed to DNA identified, were incorporated. 531 species were collected from 63 countries worldwide, with the most diverse mite fauna in India (153 species), Japan (112 species), and Brazil (99 species). *Dermatophagoides pteronyssinus*, *Dermatophagoides farinae*, and *Euroglyphus maynei* were the three most common species, collected from 298, 235 and 155 publications respectively. There were some issues with creating this database, including the large discrepancy in the number of studies conducted within one region or country. Therefore the minimal number of studies may not be an accurate representation of all mite fauna in that country. There are many geographical and housing differences between regions within a country, as well as sampling variations. There may also be an issue with species misidentification, particularly pertinent with older publications before more accurate keys had been produced. Some publications also only searched for specific species, so many others may be excluded. Finally, there is a bias towards English-written publications. Research published in certain journals or different languages may have not been encompassed within the online searches. Some information or articles may also be overlooked due to poor translation, as often an English abstract or summary is provided but not the reminder of the publication. Therefore, although this database contains as many publications as possible, some mite fauna may still be missing. However, as this house dust mite fauna database notes specific locations and collection times, it assists with detecting the previously outlined issues of sampling bias and differences between locations.

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Creator(s): Kirsten M. Farncombe

Organisation(s): The University of Reading

Rights-holder(s): Kirsten M. Farncombe

3. TERMS OF USE

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4. CONTENTS

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File listing

1. HDM\_study\_information\_database.xlsx

Includes study number, biogeographical region, country, specific location (if provided), number of species collected from each study, study date (if provided), any additional relevant information regarding the study, and reference. There are more study numbers than there are total articles referenced due to examination of more than one country within a single study.

1. HDM\_databse.xlsx

Matrix indicating the presence (1) or absence (0) of each species arranged by study number. The study numbers between files 1 and 2 link the two datasets together.

5. METHOD and PROCESSING

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All published journal articles from 1950 to the beginning of 2017 available in the United Kingdom containing relevant information of the global distribution and abundance of HDMs were assessed, and either included or excluded from this database based on the previously outlined criteria (see section 2. Dataset). This involved online searches using Web of Science, Google Scholar, EThOs, ProQuest Dissertations & Theses Global, Summon2.0, Interlibrary loans, and archives in the University of Reading collection, as well as the resources available at the University College of London library. After analysis and elimination of articles outside of the scope of this database, 347 articles were separated by country, and a judgement call was made to separate by biogeographical realm (Afrotropical, Australasian, Indo-Malay, Nearctic, Neotropical, Palearctic East, and Palearctic West) (Olson, Dinerstein, Wikramanayake *et al.*, 2001). Species names were examined for misidentification or typos. All information was consolidated in Microsoft Excel 2013.

REFERENCES

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Olson D. M., Dinerstein, E., Wikramanayake, E. D., Burgess, N. D., Powell, G. V. N., Underwood, E. C., D'Amico, J. A., Itoua, I., Strand, H. E., Morrison, J. C., Loucks, C. J., Allnutt, T. F., Ricketts, T. H., Kura, Y., Lamoreux, J. F., Wettengel, W. W., Hedao, P. & Kassem, K. R. (2001). Terrestrial ecoregions of the worlds: A new map of life on Earth. *Bioscience* **51,** 933-938. https://doi.org/10.1641/0006-3568(2001)051[0933:TEOTWA]2.0.CO;2