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## GEOGRAPHICAL INFORMATION SYSTEMS IN DETERMINATION OF SPATIAL FACTORS IN CUTANEOUS LEISHMANIASIS CASES DISTRIBUTION, IN ADANA, TURKEY

AUTHORS:

OZAN ARTUN, HAKAN KAVUR

JUNE, 2017
BUCHAREST

SORIN MIHAI CÎMPEANU, PROFESSOR, PHD
RECTOR OF THE UNIVERSITY OF AGRONOMIC SCIENCES AND VETERINARY MEDICINE OF BUCHAREST

University of Agronomic Sciences
and Veterinary Medicine of Bucharest
Faculty of Land Reclamation
and Environmental Engineering

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# BOOK OF ABSTRACTS

## Section 5

## LAND RECLAMATION, EARTH OBSERVATION & SURVEYING, ENVIRONMENTAL ENGINEERING




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# GEOGRAPHICAL INFORMATION SYSTEMS IN DETERMINATION OF SPATIAL FACTORS IN CUTANEOUS LEISHMANIASIS CASES DISTRIBUTION, IN ADANA, TURKEY

**Ozan ARTUN, Hakan KAVUR**

Cukurova University, Vocational School of Karaisalı, 01770 Adana, Turkey

Corresponding author email: hkavur@cu.edu.tr

***Abstract***

*In Turkey, metropolitan municipalities are responsible for the insecticide spraying activities in all districts of the cities. Therefore, insecticide spraying is applied in the center of Adana, in the control of vector arthropods and other pests, especially against the sand flies and mosquitoes.*

*In this study, we generated cutaneous leishmaniasis (CL) prediction risk maps based on MODIS and NON-MODIS dataset. Firstly, we determined relationship, between the presence of CL patients, human population, insecticide spraying density and several environmental variables [Enhanced Vegetation Index (EVI), Normalized Difference Vegetation Index (NDVI), Digital Elevation Model (DEM), Day Time Mean LST and Night Time Mean LST] obtained from satellite images of randomly selected 103 points were located in the central districts of Adana province, by univariate and binary logistic regression in PASW. (MoH 2016).ARCMAP 10.2. Software was used for geographical adjustments, creating a database and estimating risk models by using several geographical data. The results emphasize that distribution and the presence of the CL cases were found correlated with human population, insecticide, NDVI (LANDSAT), Day time Mean LST and Night Time Mean LST (MODIS).*

*By using Geographic Information System (GIS) Technologies, the predictions that based on univariate and bivariate binary regression analysis of variables as human population density and insecticide spraying density related to the distribution of CL cases was made.*

*The results were used to produce the prediction maps and the potential distribution areas of the incriminated CL cases with the use of GIS technologies which allowed the identification of the CL risk levels that may provide useful information to guide the control program interventions.*

***Key words:*** *insecticide, cutaneous, leishmaniasis, GIS, Adana.*