Workshop Rodent-Borne Diseases

Review of leptospirosis carriage in rodents worldwide and identification of key host species and knowledge gaps in the Asian-Pacific region

Vincent Sluydts[1], Nyo Me Htwe[2], Pyai Phyo Maw[2], Sarathchandra Siriwardana[3], Sudarmaji[4], Grant R. Singleton[5], Jens Jacob[6]

[1]Evolutionary Ecology Group, Universiteit Antwerpen, Antwerpen, Belgium, vincent.sluydts@uantwerpen.be
[2]Plant Protection Division, Myanmar Agriculture Service, Yangon, Myanmar
[3]Entomology Division, Rice Research and Development Institute, Bathalagoda, Sri Lanka
[4] Assessment Institute for Agricultural Technology, Yogyakarta, Indonesia
[5]Crop and Environmental Sciences Division, International Rice Research Institute, Metro Manila, Philippines
[6]Institute for Plant Protection in Horticulture and Forests, Vertebrate Research, Julius Kühn-Institute, Federal Research Centre for Cultivated Plants, Münster, Germany

Some rodent species are well known to live in close proximity to human houses and storage facilities and can both consume and contaminate stored produce. Rodent borne diseases can also be transmitted to human and livestock through contaminated food and exposure to rodents feces and urine. Here we report on the epidemiological aspect of a joint research project; RAT-ADAPT (Rodent damage and transmission of rodent-borne zoonotic disease in households in Asian-Pacific territories). The project focuses on rodent-borne diseases and food security. In a first stage the SCOPUS database was screened with the keyword string "rodent* OR rat* AND leptospir*" to identify the current state-of-the art knowledge on leptospirosis rodent reservoir hosts. Over 1,700 relevant English records over the past 20 years were found. These records were allocated to geographic regions using a text-mining approach and this information was combined with recent WHO maps on mortality and morbidity of leptospirosis worldwide to identify key knowledge gaps in the Asian-Pacific region. Grey literature reports and personal communication with health authorities in the region were used to complete the review. The primary rodent hosts were identified. Additionally, household surveys were conducted to gather farmers' knowledge on leptospirosis disease local rodent hosts. In a second stage and to fill some apparent knowledge gaps, rodent trapping and leptospira screening by PCR was carried out in selected countries of the Asian-Pacific region (Myanmar, Sri Lanka and Indonesia). These data will be used to identify the disease focal areas and implications of flooding on rodent host and disease epidemiology. Moreover, a better understanding of rodent dynamics will also assist in crop protection and conservation in the Asian-Pacific region.