



Metagenomics and Molecular Typing of Mosquito-borne Flavivirus in the selected districts of Punjab, Pakistan.

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Abstract:

Mosquitoes are one of the deadliest animals capable of transmitting the various pathogenic diseases to humans as well as animals. The present study was designed to identify the major species of mosquitoes, prevalent in three districts of Punjab representing the three agro-geo climatic zones viz; Multan, Chakwal and Jhang. Mosquitoes were stereoscopically identified followed by RNA extraction and multiplex RT-PCR. After RNA quantification, molecular characterization of the prevalent mosquito-borne viruses was performed through cDNA synthesis, multiplex RT-PCR followed by agarose gel electrophoresis of the PCR products. It was identified that 4334 (40.6%), 2242 (30%), 2040 (31.6%) were females out of total 10675, 7296 and 6450 mosquitoes collected from districts Chakwal, Jhang and Multan, respectively. It was concluded that, *Culex* species were present in abundance (73.2%) as compared to the *Aedes* species (26.7%) in the selected study districts. The multiplex PCR detected Dengue virus (DENV -1 and DENV-2), West Nile Virus (WNV), Japanese Encephalitis Virus (JEV) and Saint Louis Encephalitis Virus (SLEV) in the mosquitoes of all the three selected districts; however, the prevalence of mosquito-borne viruses insignificantly varied ($P > 0.05$) among the three districts. In District Chakwal, SLE was found to be most abundant (13.7%, $p=0.12$) followed in order by WNV (13%, $p=0.17$), DENV (8.4%, $p=0.91$) and JEV (7.8%, $p=Ref$ value), respectively. Similarly, in district Jhang, SLE was found to most prevalent (18.9%, $p=0.015$), followed by WNV (17.5%, $p=0.013$), JEV (8.1%, $p=0.118$) and DENV (4%, $p=Ref$ value). However, in district Multan. WNV was found to be in abundance (27.5%, $p=0.005$) followed in order by SLE (11.5%, $p=0.303$), DENV (13%, $p=0.199$) and JEV (5.7%, $p=Ref$ value). This study has provided a better understanding of the prevailing mosquito and mosquito-borne viruses in the study districts which can help to formulate appropriate control measures.

Biography:

Umar Khalid is currently a Ph.D. scholar with Seven



years of experience at hand. Excellent clinical and quality control laboratory skills, with commended performance in conducting laboratory assays and resolving complex clinical and instrumental problems. Accurate, reliable, diligent and focused on the timely, quality completion of all lab procedures. Work well under pressure and time constraints within high-volume environments. Always seeking challenging opportunities to demonstrate my skills and abilities and attain experience and more and more knowledge.

Publication of speakers:

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2. Russ, Atlantis & Hua, Anh & Montfort, William & Rahman, Bushra & Riaz, Irbaz & Khalid, Muhammad & Carew, Jennifer & Nawrocki, Steffan & Persky, Daniel & Anwer, Faiz. (2018). Blocking "don't eat me" signal of CD47-SIRP α in hematological malignancies, an in-depth review. *Blood Reviews*. 32. 10.1016/j.blre.2018.04.005.
3. Khalid, Muhammad & Khan, Shanza & Jamil, Saba. (2017). Morphologically Controlled Synthesis of Cubes like Tin Oxide Nanoparticles and Study of its Application as Photocatalyst for Congo Red Degradation and as Fuel Additive. *Journal of Inorganic and Organometallic Polymers and Materials*. 10.1007/s10904-017-0687-5.

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