World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:12, No:03, 2018

Molecular Detection and Isolation of Benzimidazole Resistant Haemonchus contortus from Pakistan

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Abstract : This study centers on molecular identification of Haemonchus contortus and isolation of Benz-imidazoles (BZ) resistant strains. Different abattoirs' of two geographic regions of Punjab (Pakistan) were frequently visited for the collection of worms. Out of 1500 (n=1500) samples that were morphologically confirmed as H. contortus, 30 worms were subjected to molecular procedures for isolation of resistant strains. Resistant worms (n=8) were further subjected to DNA gene sequencing. Bio edit sequence alignment editor software was used to detect the possible mutation, deletion, replacement of nucleotides. Genetic diversity was noticed and genetic variation existing in β-tubulin isotype 1 of the H. contortus population of small ruminants of different regions considered in this study. H. contortus showed three different type of genetic sequences. 75%, 37.5%, 25% and 12.5% of the studied samples showed 100% query cover and identity with isolates and clones of China, UK, Australia and other countries, respectively. Interestingly the neighbor countries such as India and Iran haven't many similarities with the Pakistani isolates. Thus, it suggests that population density of same genetic makeup H. contortus is scattered worldwide rather than clustering in a single region.

Keywords : Haemonchus contortus, Benzimidazole resistant, β-tubulin-1 gene, abattoirs
Conference Title : ICPM 2018 : International Conference on Parasitology and Microbiology
Conference Location : Paris, France
Conference Dates : March 15-16, 2018