

A systemic review on medicinal plants and its bioactive constituents used for the treatment of Bird Flu and further confirmation of their anti-H5N1 activity by molecular docking

Pathogenic avian influenza in poultry was first found in Bangladesh in year 2007 which caused a financial loss about 38580 crore Taka. The price of broiler and eggs fell by 28% and 26.5% respectively in that year. To add to the dying need, 200 confirmed human cases of avian influenza was reported worldwide. Bird flu is mainly caused by influenza A (H5N1) which is known for its ability to mutate and infect other species where it was not previously found. This possess an increasing need for a proper treatment scheme for H5N1 as the current available drugs are reported to have shown resistance in several cases. In this review, we focused to accumulate information from different plant sources which showed to have activity against H5N1, identified their natural compounds and underline their mechanism of action. We also performed molecular docking against the target protein H5N1 (PDB code 2IBX) with some plant based natural compounds and compared their results with standard bird flu drugs Oseltamivir and Zanamivir. The results showed that many natural compounds (5,7- dimethoxyflavone, Aloe emodin, Anthocyanins, Quercetin, Hemanthamine, Lyocrine, Terpenoid EA) showed lesser binding energy compared to the synthetic drugs which means their conformation with the protein was more stable. 5,7- dimethoxyflavone also showed to bind with Leu124 which is a binding residue for Oseltamivir. Thus, this study elucidates that plant based natural compounds could be a potential source for new drugs against H5N1.

Biography

Ashit Kumar Dutta is a current undergraduate student in Pharmacy Discipline, Khulna University, Bangladesh. He has attended multiple international and local conferences and won championships such as People's choice award, 3MT Thesis and a finalist in global food summit. Looking forward to persue his career in immunology and drug development.

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