Abstract Title: Molecular population genetics of *Nasonia* (Hymenoptera: Chalcidoidea)

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Abstract (not more than 300 words)

Nasonia is a genus of parasitoid wasp of inter-fertile species that habitually inbreed. Due to the patchy distribution of its host, populations of *Nasonia* are thought to be extremely sub-structured. Out of the four known species, *N. vitripennis* is cosmopolitan, *N. giraulti* and *N. longicornis* are found in the north-eastern and north-western part of North America, respectively whereas *N. oneida* is sympatric with *N. giraulti.* We employed bioinformatics and molecular population genetics tools and software to study the population genetics parameters. Sequence information was obtained from 65 strains gathered from North America, Europe and India from 36 nuclear and mitochondrial markers spread across the genome, totalling 25.855Kb. We identified *Nasonia vitripennis* in India and found that Indian strains cluster separately from the American and European ones indicating the presence of strong population sub-structure. Population sub-structure is indicative of incipient speciation. The measures of genetic variation in comparison with *Drosophila melanogaster* show that *Nasonia vitripennis* nucleotide diversity is lower. Population differentiation due to genetic structure (F_{st} value) is higher between Europe-India and India-North America, which is an indication of low migration rates. We further studied the divergence time between the four species, the origin and the direction of spread of *vitripennis.*

Keywords— *divergence, genome, evolution, population*

Professional Biography (100-150 words)

Garima Prazapati has completed her Masters in Genomics from Panjab University, India. She was awarded the Junior Research Fellowship and Lectureship (LS) award by CSIR (Council of Scientific and Industrial Research), one of the largest R&D organizations of Ministry of Human Resource and Development (MHRD), Government of India, to pursue research in Life Sciences in any research institution in India. In 2015, she joined PhD at Indian Institute of Science Education and Research, Mohali, a premier research institution in India. Her research area is behavioral and population genetics, in the field of entomology.



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