complement (say either N_1 or N_2) whereas females receive two genetic complements (N_1 and N_2). Males with either the N_1 or N_2 genetic complement from the same mother queen may fertilize a female, depending upon their reproductive fitness. So either type of male can fertilize the egg, and consequently some future queens will be heterozygous, others homozygous. In the case that these different populations are subject to different selection pressures for a long time, they may end up as different species through the fixation of certain homozygous genes with favourable pleiotropic effects.

The increase in population variability associated with fixation of certain genes is also favoured by the fact that oogenesis in Hymenoptera is a continuous process (Buning, 1994). The more eggs are produced, the more cell divisions are required to produce each egg. If large number of eggs destined to be workers are produced before laying the eggs destined to be reproductives, then the overall number of cell divisions taken to produce sexual offspring will be much higher than in non-social species. The rate of DNA copy error mutations is higher in sexual offspring (Bromham & Leys, 2005). So, more mutations occur per generation and species with shorter generation turnover time are assumed to have more DNA replications.

Furthermore, the number of reproductive individuals which contribute alleles to the next generation is lower in the case of ants and other social insects. So, small populations of reproductives are subject to drift and selection as compared with large populations. In one instance Shoemaker & Ross (1996) examined variation in mitochondrial DNA and two unique nuclear genes in *Solenopsis invicta* demonstrating the potential for social selection to generate significant barriers to gene flow and to initiate reproductive isolation. Interestingly sympatric speciation has been predicted to be faster and involve fewer loci than allopatric (Via, 2001).

2. Another important aspect which can provide vital clues about sympatric speciation is social parasitism in ants. Buschinger (1990), a pioneer in the study of social parasites in ants, addressed the issue comprehensively. Even Ernst Mayr agreed that socially parasitic ants are the most convincing example for the existence of sympatric speciation (A. Buschinger, pers. comm., dated 29/4/2007, 12:12AM). Recently mitochondrial DNA studies conducted on social parasites by Savolainen & Vepsalainen (2003) provided some evidence for this mode of speciation. Bromham & Leys (2005) predicted that most social parasites should have faster rates of molecular evolution than their social relatives, which is consistent with an effect of reduced population size. In this pretext if more molecular studies were conducted on social parasites the results could be intriguing.

3. Since MacArthur and Wilson's (1963) theory of island biogeography many arguments had cropped up regarding its application, before Emerson & Kolm (2005) provided evidence based on their studies on the Canary and Hawaiian islands. The central tenet of their theory was that species diversity may itself promote speciation. They argued that the number of endemic species is expected to increase with an increase in species diversity. The applicability of the theory has proven equally good for mountain systems like the Himalaya. Studies conducted by the author reveal that about 45% of the Himalayan ant fauna (at more than 1000 metres above sea level) is endemic, though most of them have wide altitudinal ranges (Bharti,2008). The only plausible reason for such a high level of