CONCLUSION
The present work, “Studies on distribution and biology of orchids in Chikmagalure district, Karnataka” carried out from January 2007 to May 2012 was revealed rich diversity of orchids in the district. The documented 93 species of orchids in the district represents 52.84 % of the orchids reported from the Karnataka state (176 spp.) and 7.75 % reported from the India (1200 spp.). 58 species are addition to the published Flora of Chikmagalur and 09 species viz. *Dendrobium wightii, Dendrobium lawianum, Eria exilis, Eulophia emilianae, Goodyera procera, Liparis biloba, Peristylus lawii, Peristylus plantagineus* and *Thunia venosa* that recorded in this flora are not found during the present work. Totally 102 orchid species were contributed to the Chikmagalure district. The presence of 40 species in Sri Lanka, which is a part of Western Ghats, showed extended distribution of these orchids. *Dendrobium* and *Habenaria* are emerged as dominant genera contributing highest i.e. 10 species.

*Taniophyllum scaberulum* is new record to the orchid flora of Karnataka that documented in Sringeri taluk. It is very small orchid among the documented 93 species and found only on two *Randia dumetorum* plants. The native people use this *Randia dumetorum* for fencing their agricultural land. Hence, there is a severe threat to this orchid and need to be take proper conservation priority. An attempt is made to conserve these two *Randia dumetorum* plants by educating those native people. Two species viz. *Habenaria* and *Eria* are not able to identify up to species level because of the lack of literature and less sample.

In all taluks, evergreen forest contributes less orchid diversity whereas scrubby and moist deciduous forest represents maximum orchid diversity. It may be because open canopy, rough bark texture of host plants with luxuriant growth of lichens in scrubby and moist deciduous forest that favours the orchid growth. Therefore, *Hopea ponga, Terminalia paniculata, Randia dumetorum, Syzygium cumini* are emerged as best host plants in the district. The orchids *Aerides crispa,*
Concussion ••

*Dendrobium machrostachyum* and *Oberonia chandrasekharanii* are found in all selected six types of forests. Presence of orchids in Teak plantation and Acacia plantation is a good indicator of the orchid richness in the district and shows that many orchids can adapt themselves to man-made forests. Seventy five species of host plants belonging to 35 families preferred by 37 epiphytic orchid species within the transect shows their wide range of host specification. In addition, *Trias stocksii* and *Dendrobium herbaceum* were found to be hosted by Areca trees cultivated by villagers. The presence of orchids on nice peeling bark of *Lagerstroemia lanceolata* indicates their adaptation for survival.

The statistical analysis of plant diversity by using transect method is common method in biodiversity field, but it is first attempt in the field of orchids. This study reveals that in epiphytic orchids, *Aerides crispa* is most frequently distributed orchids that found on highest number of host plants and *Sarcanthus pauciflorus* is emerged as most important orchid with highest SIV and density in the district whereas in terrestrial orchids, *Habenaria heyneana* is the most dominant orchid.

The GBH measurement of host plants showed that plants having lesser girth or moderate girth plants support the maximum orchids compared to large girth trees. The maximum number of orchids found on host plants is at low height i.e. 1-5 feet. It indicates small plants support the maximum growth of plants in the district.

Simpson diversity ranged from 0 to almost 1. The lower value indicates the higher species richness. The Chikmagalure taluk represents lowest Simpsons value (0.09) compared to other taluk whereas it is 0.14 for epiphytic orchids and 0.11 for ground orchids in the district. Shannon-Wiener index is the another popular diversity measure, which is based on information theory. Generally, it ranges from 1 to almost 5. The higher value indicates the higher species diversity. It is also
highest in Chikmagalure taluk (2.66) when compared to other taluk. Shannon value of epiphytic orchids in the district is 2.16 and ground orchids are 1.07. These two diversity indices reveal that the orchid diversity in Chikmagalure district is not very rich.

Plant phenology is concerned with the study of different phenophases like leafing, flowering and fruiting and their seasonal pattern in relation to the climate. In the present work, a detailed account of the phonological observations made on selected 32 orchid species. These studies help better understanding of ecological adaptations, interaction of individual species and also from the point of view of germplasm conservation and horticultural improvements.

Seed morphology of selected nine orchids in the present study serves as a source of systematic character to circumscribe sub-generic groups or hypothetical relationships among species within a genus. In the present work, size and air space are large in ground orchids than that of epiphytic orchids. The present study strongly support that light and buoyant seeds with greater percentage of air space get dispersed over wide geographical area as against with less percentage of air space that have confined a narrow geographical areas.

*Ex-situ* performance of selected 30 orchids would become helpful for conserve them in their wild niches and also for replication in an Orchidarium. *Ex-situ* method of conservation in an Orchidarium is the most ideal, followed by tissue culture techniques. In this way, sapling can be made available to the public so as to reduce the pressure on wild population of orchids.

The separate dichotomous artificial keys for both genus and species of all documented species would helpful for easy identification of orchids. During the construction of keys, more importance was given for vegetative structure than sexual characters.