In Angiospermae, Orchidaceae is one of the most diverse and highly evolved plant family. Orchids constitutes approximately 40% of the monocotyledonous taxa. There are nearly 880 genera and 22,000 species that have been accepted by the Royal Botanical Garden of Kew. In India, Western Ghats being one of the 34 hotspots of world, a lot of attention has been drawn towards the endemic and discovery of new species. Regardless of the outstanding taxonomical data on the plants available in India, there are insufficient information with respect to orchids found in the regions falling in Karnataka State. As per the literature survey, about 300 species of small flowered orchids are found in the Western Ghats of India which constitutes 9% of Indian flora. There are almost 1,400 wild species of Dendrobium making it the third largest genus in the orchid family. Dendrobium is mainly known for its ornamental beauty and rarely for its medicinal properties. In Ayurveda, different parts of this genus has been used like pseudobulb of Dendrobium were used to improve digestion and production of body fluids. The secondary metabolites produced by the plant are mainly responsible for the medicinal properties.

In the present investigation, the first phase was to understand the diversity and conservation strategies for Dendrobium species that are found in the Western Ghats of Karnataka State. The succeeding phase of the study was the phytochemical profiling of the plants that enabled us to determine the chemical make-up of the plant. The collected plants were identified morphologically and genetically using various barcodes and RAPD primers. This facilitated in discriminating the species and interpret the evolutionary relation among the species of the same genus. Secondary metabolites like moscatilin, resveratrol, tristin, confusarin etc., was identified and quantified using mass spectrometry and HPLC. After the quantification, the stilbene compound- moscatilin was isolated and purified from Dendrobium.
ovatum collected from the Western Ghats. The compound confirmation was done by targeted MS/MS followed by NMR. The anti-tumour property of moscatilin was studies using various human cancer cell lines like human breast carcinoma MCF7 cells, human hepatoma HepG2 cells, human cervical cancer SiHa cells, human colorectal cancer HT29 cells, human bone osteosarcoma Saos2 cells and human tongue adenocarcinoma Cal27 cells. The human fibroblast cells were obtained from the normal skin tissue. Our results showed that moscatilin can be a potential anti-tumour compound as the proliferation of the cancer cells were inhibited in time/dose dependent manner.