

Cupressus torulosa is a Good Substitute of Two Selected *Juniperus* Species for Aroma Potentials

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Essential oils which are complex mixture of terpenoids and other class of components isolated from different plant parts of aromatic plants, find impotent place in industry due to extensive uses in food, flavour, fragrances and pharmaceutical industry, More than 250 different type of essential oil worth US\$ 1.2 billion per annum are traded in the globe [1] A number of countries produced different kind of essential oils. India ranks second in world trade due to wide application in cosmetic, food, and pharmaceutical, therapeutically these used as antiseptic, stimulant, carminative, diuretics etc. A number of aromatic crops are cultivated in different parts of the worlds such as Mentha species, Lemongrass, Basil, Lavender, Geranium, Patcholi, Vertiver, Rose species and sandal [2]. India exported of essential oils is worth Rs. 6 billion [3]. Due to increased awareness of health hazards associated with synthetic chemicals, the use of essential oils has been gradually increasing. The consumers are showing increasing preference for natural material over the synthetic, for fulfill the requirement of industry number of wild growing floras which are not cultivated commercially, but exploited from wild region unscientifically for commercial utilizations, some species population in risk. Under risk species are sources of high value compounds like α - pinene is widely used in perfumery industry due to the pleasant aroma. Limonene used in the preparation of commercially available shampoos, mosquito repellents and agrochemical [4].

Keeping in View of the above fact there is an -increasing demand for natural essential oil along with quantitative data in the flavors and fragrance field, in particular with regard to essential oils, a team of Centre for Aromatic Plants Selaqui Dehradun worked on exploration of new sources of aroma chemical, and standardization of the analytical methods and alternative sources of aroma molecules from Himalayan floras for the betterment of Himalayan Inhabitant. In investigation of *Cupressus torulosa* and *Juniperus* species needles essential oil extracted and characterized to explore the possibility of substitute of *Juniperus* species is *Cupressus torulosa* essential oil.

Cupressus torulosa are Bhutan cypress and Himalayan cypress. It is an evergreen tree that grows up to 30 to 40 m tall. *Juniperus* L. (*Cupressaceae*), a genus of evergreen aromatic shrubs or trees is distributed in temperate and cold regions of the northern hemisphere. *Juniperus* viz. *J. communis*, *J. wallichiana*, in the India Himalaya regions. *Juniperus* species growing in higher altitude region of Himalaya for the

survival of the *Juniperus* species at a risk in nature due to continuous exploration in for preparation of tradition incenses and material for essential oil extraction etc. essential oil analysis of the needles and berry of *Juniperus* species i.e. *J. communis*, contain monoterpene hydrocarbons (76.2-81.4%). Major components such as α -pinene (31.8-49.5%) and limonene (13.7-19.5%) δ -3-carene (9.7%- 14.7%) sabinene (0.8-6.7%), β -myrcene (2.4-5.6%), β -pinene (2.1-4.3%) and α -terpinyl acetate (1.7-2.9%). *J. wallichiana* also having monoterpene hydrocarbons (69.1-76.3%) Sabinene (32.5- 51.0), α -pinene (6.2-12.6%) terpinen-4-ol (7.3-14), and *C. torulosa* needles also found similar quality of the major commercially utilized components such as α -pinene (30.30-34.26), Sabinene (4.60-20.1%), delta 3 carene (6.52-18.67%), limonene (8.54-23.79%) [5,6], essential oil is of *Juniperus* species widely used in the perfumery, cosmetics and pharmaceutical industries However Study of CAP indicated that *C. torulosa* found in lower altitudes region and found abundant quantity in nature it can be used as a substitute of the *Juniperus* species for its aroma value due to similarity of chemical components [5], to proposed developed efficient technology for propagation and mass multiplication through conventional as well as biotechnological approach for its conversation is required? More trial in efficiency stability of *C. torulosa* essential oil needed.

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