Towards the Sustainable Production of High Quality Rosewood Essential Oil from cultivated Young Aniba rosaeodora Duke

Didier Stien, a* Clotilde Chalmandrier, a Emeline Houël, a Gérard Gil, b Bernard Thibaut, a Jacques Beauchène a

a UMR Ecofog, Institut d’Enseignement Supérieur de la Guyane, BP 792, 97337 Cayenne cedex, France (didier.stien@guyane.cnrs.fr). b Université Paul Cézanne, UMR CNRS 6180, Case A62, 13397 Marseille cedex 20, France.

Aniba rosaeodora Duke (rosewood, Lauraceae) is a slow growing evergreen tree, indigenous over Brazilian Amazon, Guyana, Suriname, French Guiana, Venezuela, Colombia and Peru. Its fragrance is essentially due to high wood content in sweet-smelling terpene linalool. Essential oil can be extracted from steam distillation of A. rosaeodora chipped wood. All parts of the tree are fragrant although traditionally, only the trunk wood is distilled. This essence possesses a peculiar refreshing, sweet, woody, aromatic, somewhat rosy odor, which makes it one of the most valuable ingredients in top-of-the-range perfumery. Non-sustainable exploitation led to rarefaction of this tree, which is now facing a serious risk of extinction. A. rosaeodora is now fully protected in French Guiana and is not exploited any more. However, rosewood oil from French Guiana still possesses an excellent reputation in perfumery. It is especially renowned for its high relative proportion of leavo-linalool. In fact, both enantiomers of linalool may be found in rosewood in variable relative proportions. Oil containing more than 50% of (-)-linalool is most appreciated by perfumers. Today, a new thought about rosewood culture and sustainable exploitation is pertinent.

Will understanding linalool distribution and enantiomeric ratio in different parts of the tree contribute to rationalize the methods of cultivation and harvest?

**Conclusion:** Many questions remain on the possible selection of genotypes on the linalool yield and on the optimum age of harvest for coppice shouts to have the best combination of quality and yield. However, it seems that Agelas genotype young A. rosaeodora can produce high quality rosewood essential oil in good yield provided that chlorophyllous parts be removed prior to distillation. Therefore, such trees may be used for coppiced trees cultivation and sustainable oil production, allowing for a short-rotation of trees in plantations.