grape species *Ampelocissus indica* (L.) planch, is a good source of nutritional phenolics and that can be utilized as a natural source of antioxidant.

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Technical Sessions : A - 18

Wood based cologne from neem

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Perfume is a mixture of fragrant essential oil or aromatic compounds with fixative and solvent. They are used to give the human body, animals, food, objects and living species a pleasant odour. Wood extracts are very important in perfumery because they provide mostly fragrance which gives a smell for a long period of time. In this study, we used several wood extracts, *Azadirachta indica* (Neem/kohomba), *Berrya cordifoli* (Trincomalee wood/ halmilla), *Terminalia arjuna* (Kumbuk), *Bridelia retusa* (katakalla), and *Schleichera oleosa* (kone) to determine the one with the best odour for the preparation of the cologne.

To extract the wood essential oil from neem, several methods were experimented with, such as solvent extraction, using Clevenger apparatus and steam distillation. Out of the wood essential oils, the most appealing one was selected by consulting a panel of 15 people for the best odour. Wood essential oil is usually categorized as the base note. To confirm this, test and control solutions were prepared, and these were left at room temperature for 6 hours. After 2, 4, and 6 hours, the smell of the two cotton fabrics, one soaked with Neem extract and the other with the control, were checked by 15 people. They were asked which fabric had the best retention of the fragrance. Fixative property was checked by two methods, selection by a panel of people and weight loss method. Selection of best fragrance combination was carried out by preparing 7 samples using different essential oils from top, middle and base notes, and these were examined by a panel of 15 people. Quality parameters of the cologne were checked according to specifications for cologne, SLS 534:1981, and pH, alcohol content and turbidity were checked. Alcohol content was determined by GC. Turbidity was measured by Hach2100Q Turbiditymeter.

Neem, rose, jasmin and lime essential oils were extracted. Neem was selected as the preferred wood fragrance essential oil. As the odour of neem retained for six hours, it was categorized as the base note. Neem essential oil had fixative property. The majority of the panel of 15 people preferred the sample which contained neem, jasmine, rose and lime essential oils. Therefore, this combination was developed in to a cologne (Table 1). The pH of the cologne was 6.5, which is within the SLS specifications while the turbidity was 2.52 NTU indicating that neem oil mixes well with the other components.

Table 1 Composition of the cologne

Ingredients	Volume (mL)
*Fragrances	4
Glycerin	5
96% Ethanol	80
Deionized water	Volume needed to make up to 100 mL
Total volume	100

According to GC analysis, there was no methanol and only ethanol was present in the cologne. Ethanol content was calculated as 76%.

The best method for the extraction of neem (*Azadirachta indica*) wood essential oil was steam distillation. Solvent
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extraction can also be used, and Neem essential oils can be extracted with dichloromethane and hexane. The panel of 15 people selected neem oil extracted with dichloromethane as the best for perfumery. It has a pleasant odour and it can be used as a base note fixative. It is also a real fixer as it can absorb other materials and slows down evaporation. In conclusion, Neem essential oil can be developed as a cologne which is natural and has beneficial properties for the skin.

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Technical Sessions : A - 19

Variation of antioxidant activity and the extraction kinetics of polyphenols of fannins grade green tea (*Camelia sinensis*) with geographical elevation

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Camellia sinensis is one of the most commonly consumed drinks in the world. It has many beneficial health effects associated with our day to day life. Tea polyphenols are responsible for antioxidant activity and health benefits. The phytochemicals composition of tea may vary with the geographical area. Hence the present study reports a comparison of polyphenols, flavonoids, antioxidant activity and extraction kinetics of fannings grade green tea from different elevations (upcountry, mid country and low country) in Sri Lanka.

Tea extracts were prepared in the traditional method by adding tea leaves to boiling deionized water and analysis were carried out with the tea extracts collected at different time intervals. The total phenolic and total flavonoid contents were determined using Folin Ciocalteu method and Aluminum Chloride assay respectively. The 1,1-Diphenyl-2-picrylhydrazyl (DPPH.) and Ferric Reducing Antioxidant Power (FRAP) assay were used in the determination of antioxidant activity.

The present study revealed that the antioxidant activity of tea from low and mid country is higher than those from up country. The variation of phenol content (w/w % GAE equivalent) at 720 s in brewed green tea varied with the geographical elevation and follows the order of mid country (20.22 ±0.24) > up country (18.56 ±0.73) > low country (14.83 ±1.45) and the flavonoid content (w/w % quercertine equivalent) at 720 s varied in the order up country (11.11 ±1.27) > low country (12.25±0.83) > mid country (6.92 ±1.0). The EC50 value for DPPH. scavenging and FRAP assay indicated that the antioxidant activity increase in the order low, mid and up country. The results showed a significant variation ($p < 0.05$) in antioxidant activity and total phenolic and flavanoid content among the three elevations. The extraction kinetics of polyphenols and flavanoids showed second order kinetics. To obtain maximum extraction of antioxidants, green tea has to be steeped at least 6 min.

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