

Investigation of the potential of *Piper chuyva* (Miq.) C. DC. as a healthy alternative for tobacco in cigar (bidi)

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Reduction of ‘bidi’ consumption in the society is essential as it causes severe impairments on human health due to the usage of tobacco as a filler in the product. This study was planned to introduce a potential alternative for tobacco used in cigar. Genus *Piper* is characterized by a prominent mucilage canal in internodes. An air exchanging region is formed by destructing of internodes mucilage canal tissues upon drying which allows smoke to pass through to one end of the internode while the other end continuously burn. Most suitable *Piper* species was selected by considering the diameter of air exchanging region of dried internodes. Internodes with higher diameter of air exchanging region pass more smoke through the internodes. Cross sections of oven-dried samples of the first four internodes from the tip were microphotographed by Olympus BX43 Camera microscope and diameters of air exchanging regions were measured by “image-J” software to select the plant species and the internode with the highest diameter of air exchanging region by comparing the diameters of each species. A dried sample of the third internode of *Piper chuyva* had the comparatively highest diameter of air exchanging region of dried internodes. In this regard *P. chuyva* was selected in above test and it was treated with a *Curcuma longa* solution used as a healing remediation for respiratory disorders in Ayurveda, with the aim of developing a value added product. Along with that, non-treated plant sample and a commercial bidi sample were qualitatively analyzed by GC-MS method to compare the composition of the smoke followed by a sensory evaluation. Sixty untrained panelists including 30 smokers and 30 non-smokers were participated in sensory evaluation. Higher amounts of hazardous compounds such as Pentadecanoic acid and Octadecanoic acid were detected in the cigar smoke but less in *P. chuyva* smoke. The non-treated sample was favored by smokers in the sensory evaluation. It was revealed that non-treated *P. chuyva* can be developed as a healthy alternative for tobacco in cigar after investigating the health effects of the smoke.

Key words: *Healthy alternative, bidi smoking, sensory analysis, Piper chuyva*

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