

Anatomical and Histological Characters of *Cymbopogon nardus* Roots and Its Mutagenic Properties

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Abstract : *Cymbopogon nardus* Rendel (Family Gramineae) is commonly known as citronella grass. The dried root of *C. nardus* is used for antipyretic, anti-inflammation, anti-analgesic and anticancer in traditional Thai medicine. Transverse sectional and pulverized *C. nardus* root were illustrated. The volatile oil was extracted from oil gland by hydrodistillation and analysed by GC/MS. *Cymbopogon nardus* root was exhaustively extracted by continuously maceration in ethanol and water respectively. The mutagenic and antimutagenic properties of the ethanol extract and fractionated water extract of *C. nardus* root were evaluated by Ames assay using the *S. typhimurium* strains TA98 and TA100 as the models. The result indicated that the anatomical character of root transverse section displayed epidermis, parenchyma, oil gland, phloem, xylem vessel, endodermis and pith. Histological characters of root powder showed parenchyma containing oleoresin, parenchyma in longitudinal view, reticulate vessel, annular vessel, starch granules and fragment of fiber. The root volatile oil was rich in sesquiterpenes dominated by elemol (22.87%) and alpha-eudesmol (16.09%). For mutagenic activity, the both extracts of *C. nardus* were no mutagenic toward *S. typhimurium* strains TA98 and TA100. Furthermore, the ethanol extract and fractionated water extract of *C. nardus* root demonstrated strong antimutagenic effect against of nitrite treated 1-aminopyrene to *S. typhimurium* strains TA98 and TA100. This present investigation suggested that the dried root extract of *C. nardus* can be further developed as promising antimutagenic agent.

Keywords : *Cymbopogon nardus*, volatile oil analysis, mutagenic, antimutagenic effect, Ames Salmonella assay

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020