

Evaluation of phytochemical components of various parts of *Cola millenii* K. Schum

Faith Iguodala AKINNIBOSUN^{1*} and Bolorunduro Lanre ADEWUMI²

¹Department of Microbiology, Faculty of Life Sciences, University of Benin, P.M.B 1154, Benin City, Nigeria

²Department of Science Laboratory Technology, Faculty of Applied Sciences, Rufus Giwa Polytechnic, P.M.B. 1019, Owo, Nigeria

Abstract. This study is aimed at evaluating the qualitative and quantitative phytochemical composition of various parts (leaf, stem bark, root, seed and pulp) of *Cola millenii* a medicinal plant of southwestern Nigeria. The bioactive ingredients were extracted using water, ethanol and *n*-hexane in a solvent-percolation protocol. The qualitative phytochemical screening result revealed the presence of alkaloids, saponins and tannins in all the parts of the plant analyzed. Glycosides was found in only the seed and pulp extracts while only the seed, leaf and stem bark contain terpenoids. Also, flavonoids were found in pulp extract only whereas, anthraquinones were not found in all the plant parts. In the quantitative analyses aqueous extracts of the pulp parts contained higher saponins (1.81%), tannins (0.77%) and flavonoids (1.12%) followed by seed aqueous extract which had 0.62%, 0.51%, 0.70% and 0.47% composition of alkaloids, saponins, glycosides and terpenoids respectively. In ethanol extract, pulp extract also had higher percentage of alkaloids (1.72%), saponins (2.24%), tannins (1.15%) and flavonoids (1.21%) compared to other parts of the plant however, glycosides was found in higher percentage in seed extracts (1.10 %) than in pulp (0.21%). Moreover, in *n*-hexane extracts of the plant parts, pulp extracts revealed higher percentage of alkaloids (1.71%), saponins (1.40%) and flavonoids (0.93%) followed by stem bark extract whereas glycosides was present in higher percentage in seed (0.82%) than pulp extracts (0.38%). In all, the pulp and seed extracts of the plant contained more phytochemicals than other parts screened. Moreover, pulp extracts contain higher percentage of these phytochemicals than the other parts except glycosides and terpenoids which were more abundant in seed extracts than the other parts. Among different solvents used for extraction in the series, ethanol had the highest extraction capacity in pulp, leaf and stem bark extracts while *n*-hexane had the best extraction capacity in the seed extract. Thus, *C. millenii* may possess medicinal properties which may be expeditiously utilized in the pharmaceutical industry.

Keywords: *Cola millenii*, phytochemicals, alkaloids, saponins, terpenoids, anthraquinones, glycosides.

* Corresponding author. E-mail address: faith.akinnibosun@uniben.edu (Faith Iguodala Akinnibosun)