ABSTRACT

Plant materials remain an important resource to combat serious diseases in the world. The traditional medicinal methods, especially the use of medicinal plants, still play a vital role to cover the basic health needs in the developing countries. The medicinal value of these plants lies in some chemical active substances that produce a definite physiological action on the human body. The most important of these bioactive constituents of plants are alkaloids, tannin, flavonoid and phenolic compounds. Aim of the study was to find isolate and identify the active compounds present in GLV flowers. First the selected two GLV flowers were dried at room temperature and powdered for further analysis. The nutrient analysis such as carbohydrate, amino acid, vitamin B-complex, total fat, ash and fibre and macro and micro element analysis was done using ICP-OES. The volatile compounds present in the GLV flowers were analyzed by using solvent distillation method. Then the screening of phytochemical constituents was carried out in fresh GLV flowers. Afterwards extraction and isolation of polyphenolic compounds were carried out. The 80% methanolic extracted sample was performed the isolation by varies solvent techniques based on the compounds solubility were exchanged the polarity on column chromatography. After the isolated compounds was purification were used by preparative HPLC and Flash chromatography system. Then the active compounds were identified, interpreted and the purified compounds are conformed to the structure elucidation using on LC-MS, GC-MS, HPLC, DSC, $^1$H NMR and $^{13}$C NMR. Quantitative determination of primary metabolite was found such as total phenol, total flavonoid and total anthocyanin and then biological activity (antioxidant (FRAP assay) and antimicrobial) of GLV flowers were analyzed. The result of quantification of primary metabolites was revealed that highest nutrition content was present in coriander (B-complex vitamin and amnio acid and carbohydrate classification) than drumstick flower. More than 40-50 compounds volatile oils were observed from the GLV flowers. From the phytochemical screening revealed that the presence of medicinally active constituents, alkaloids, phenol, anthocyanin, glycosides, reducing sugar and flavonoids were present in the flower extract. Steroids and saponins were found to be absent on coriander flower. The column chromatography separation of two flowers extract was observed the number of fraction. The following 10 isolated compounds were identified and the compounds such as five flavonoids (Apigennin, Luteolin, Quercetin, Kaempferol and Rutin), one phenolic acid (Chlorogenic acid), two steroids (Beta-sitosterol and Sitgmasterol), one
triterpenoid (Ursolic acid) and one pigment (Lutein). The quantified result of the phenolic content quantification was performed, which is in coriander flower (46.75±2.10 mg/g). Coriander flower was having highest flavonoids content (27.73±1.96mg/100g) than drumstick flower (25.52±1.54 mg/100g). Second highest phenolic content is drumstick flower (44.47±1.95mg/g). The anthocyanin content was highest on drumstick flower (34.42±2.37 mg/100g) than Coriander flower (26.57±2.61mg/100g). Among the total antioxidant activities, highest concentration of 500µg/ml highest activity (2.553µ/ml) was observed from the flower of coriander flower extract. The total antioxidant content performed by FRAP Assay, present result were arranged to higher level to lower content (coriander flower>drumstick flower). The study of antibacterial activity (gram positive and gram negative) was carried out and comparing with stand two standard of Chloramphenicol and Ciprofloxacin. All the isolated components showed significant zone of inhibition of S.aureus and S.pyogenes (Gram positive) and E. coli and P. aeruginosa (Gram negative). This showed that these components may have great potential as remedy for infection/disease caused by S.aureus and S.pyogenes and E. coli and P. aeruginosa. From this study it was concluded that, the isolated natural active compounds from GLV flowers alone or in combination with other preventive and/or therapeutic strategies will become effective future drugs against the most common degenerative diseases such as cancer, diabetes and cardiovascular complications.