

Fig. 2 The standard of flavonoid (quercetin) maximum curve  $\lambda$  510 nm

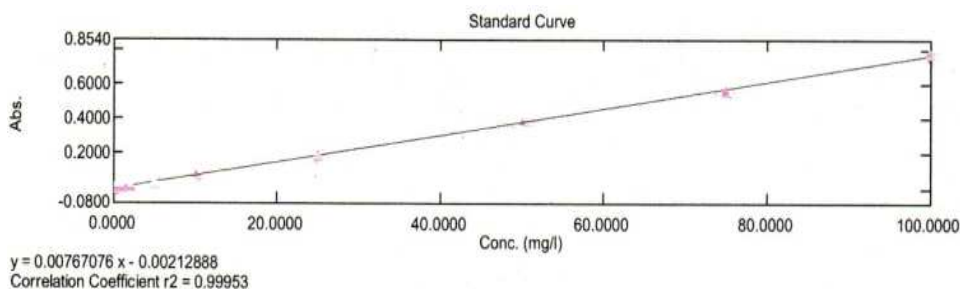


Fig. 3 The standard of phenols (folin-ciocalten) maximum curve  $\lambda$  760 nm

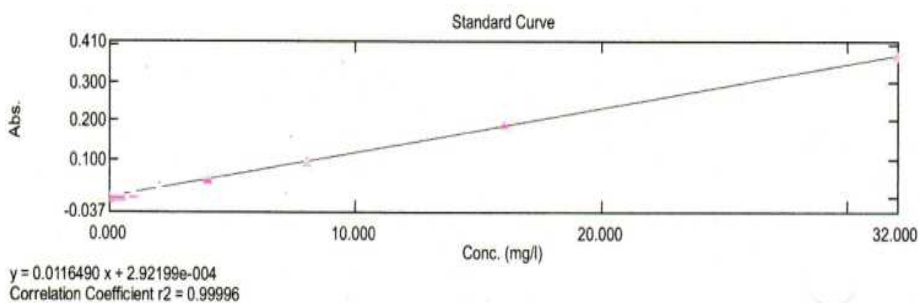


Fig. 4 The standard of tannins (tannins acid) maximum curve  $\lambda$  760 nm

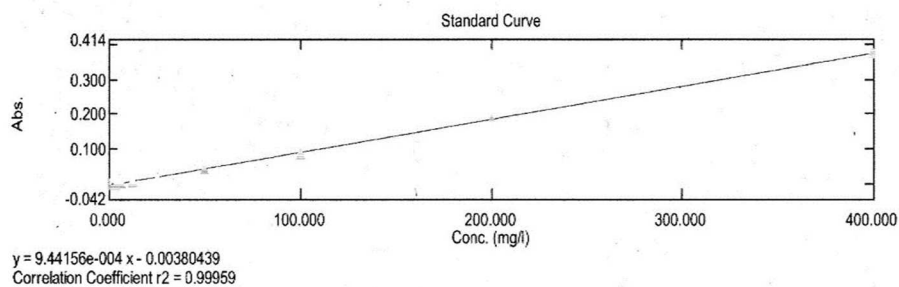


Fig. 5 The standard of saponin maximum curve  $\lambda$  435 nm

### C. Analysis of Alkaloid Compound

The analysis showed that the three samples positively contained alkaloid compounds. *Tacca* tubers showed the highest number, namely tubers in Gorango village which had alkaloids of around 2,496.35 mg/kg (tubers), followed by Gurua village with around 2,390.46 mg/kg (tubers), then Beksili village showed the number of alkaloids around 2,394.38 mg/kg (tubers). This indicates that the tuber is a place where carbohydrates are collected which are used for growth.

The results showed that the leaves contained phytochemical compounds such as alkaloids. In line with Wijayanti et al [14] research regarding *Syzygium cumini* leaf

extract extracted with ethanol, it contains alkaloids. The same thing was done by [15] regarding *juwet* leaf extract which contains alkaloids.

Apart from tuber leaves which have alkaloid compounds, the stems also have alkaloid compounds. In line with the research of [16] regarding the ethanol extract that the Pakoba stem bark contains alkaloids. In the field of pharmacology, the role of alkaloids is needed to improve the nervous system, lower blood pressure, as an antimicrobial, antioxidant activity and fight infections [17].

### D. Analysis of Flavonoid Compound

The analysis showed that the ethanol extract of *Tacca* tuber had the highest flavonoid content in Beksili village, namely

9.07%, followed by Gurua village 8.50% and Gorango village around 7.20%. on the leaves also have flavonoid compounds. In line with Syafi et al [9] research regarding *Syzygium cumini* leaf extract extracted with ethanol, it contains flavonoids. Not only in the leaves and tubers, but the stems also have flavonoid compounds. [16] about the ethanol extract that the Pakoba stem bark contains flavonoids.

The *Tacca* plant that lives on the beach has a high phytochemical content. In line with the research, seaweed has bioactive content from ethanol extract, namely flavonoids saponin, alkaloid, triterpenoid and phenol. Total active flavonoid id from ethanol extract of *Gracilaria sp.* [18],[19].

A higher number of flavonoids can act as a competitive inhibitor, because they contain anti-inflammatory, antibacterial, antioxidant and anti-diarrhea activities [20]. Flavonoids have allergy, antioxidant, vascular and anti-tumor cytotoxic properties. Flavonoids have allergy, antioxidant, vascular, and anti-tumor cytotoxic properties [21].

Table 2. Shows that the ethanol extracts of leaves, tubers and taka stems at the three research locations contain flavonoids. The results of the analysis with a UV-vis spectrophotometer had the highest number of flavonoids in Bebsili Village, namely around 9.07% (tuber), and the lowest number of flavonoids was found in the leaves, namely 1.30% (Bebsil). leaves of *Karamunting* extracted using ethanol obtain bioactive compounds that are useful as anticancer compounds, namely flavonoid compounds [22].

#### E. Analysis of Phenolic Compound

The analysis showed that the phenol content in the ethanol extract of taka tubers showed phenol content of 12.74% (Gorango), followed by Bebsili (11.48%) and Gurua (10.73%). The same results were found in the leaves and stems. The same thing was done by Wiajayanti et al [14] regarding juwet leaf extract which has phenolic content.

The ethanol extract of taka rods had moderate amounts of phenols compared to alkaloids and saponins. The amount of phenol in the taka stem is 8.19% (Bebsili), 9.45% (Gorango) and 9.80% (Gurua, the same thing is done with moderate phenol levels, namely 51.5 mg GAE/g, can increase antioxidants, Inhibiting microbes or these antioxidants have various pharmacological effects such as antibacterial, anticancer, antiviral, and anti-inflammatory [23].

From the results of the tests that have been carried out, it shows that the three positive samples contain tannin compounds. The highest content of tannin compounds in the tubers was around 5.14 (Gurua), followed by Bebsili (4.90%) and Gorango (4.08%) and in the leaves the highest number of tannins (4.48%). Apart from *Tacca* tubers, leaves and stems also produce tannin compounds. [16] regarding the ethanol extract that the Pakoba stem bark contains tannins. The bark of *Rhizophora apiculata* produces tannins which are used as a source of natural antioxidants [24].

The presence of phytochemical components in mangrove plants lies in the leaves, roots, stems and fruits. *Rhizophora apiculata* is useful as an anti-diarrhea, nausea, vomiting, antiviral and hypoglycemic drug. The bark of *Rhizophora apiculata* produces tannins which are used as a source of natural antioxidants [25]. Those basil leaves contain tannin compounds, which function as antipyretic, anti-fungal, analgesic, antiseptic and antibacterial [26].

#### F. Analysis of Tannin Compounds

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Table 2. Shows that the ethanol extracts of leaves, tubers and *Tacca* stems at the three research locations contain tannin compounds. The results of the analysis using the spectrophotometer UV-Vis that had the highest number of tannins were tubers in Gurua village around 5.14%, followed by tubers from Bebsili village about 4.90% and leaves from Gorango village 4.48%, the lowest was on leaves, namely 2.26% from Bebsili village. The same thing was done by [27] regarding *biduri* leaf extract at a concentration of 300 ppm of 7.12 µg/ml and the lowest at a concentration of 100 ppm, namely 1.16 µg/ml, this shows that there are other compounds in the tannin compound.

Extracted from mangrove leaves using ethanol extract has the potential to control bacterial growth, because mangrove leaves contain bioactive compounds in the form of alkaloids, tannins, saponins, steroids, and flavonoids [28].

#### G. Analysis of Saponin Compound

From the test results, it was found that all the samples used produced high saponin compounds, namely tubers, stems and leaves. The highest saponin compounds were around 4,203.32 mg/kg (Gorango), followed by Gurua (4.0167.71 mg/kg) and Bebsili (3,835.86 mg/kg). Apart from the taka tubers, the leaves and stems also produce saponins. Saponins have biological activity that is used as cosmetics and antioxidants [29]. In saponin compounds, there are glycosides that function as polar groups and nonpolar groups [30].

*Charantin* which is a saponin steroid compound is very effective in lowering blood glucose [29],[30]. There is also *Momorcharin* which is a glycoprotein reported to have anti-fertility properties and can even cause miscarriage. Other activities are allergy, anticancer, anti-HIV (Antivirus), immunomodulators [31].

The results of the ethanol extract research on the taka plant using *spectrophotometric UV-vis* showed, that the saponin in the taka tuber had a higher amount of around 4.203.32 mg/kg (Gorango), followed by Bebsili (3.835.86mg/kg) and Gurua (4.016.71 mg/kg), while the number of taka leaves had the lowest saponin content, namely 2.318.54 mg/kg (Bebsili). [29] that *senggani* flowers with ethanol extract contain saponins, namely 11.46%.

#### H. The Standard of Alkaloids, Flavonoids, Phenols, Tannins and Saponins Compounds

The choice of method can influence research, so the extraction method is easy to do and can protect compounds that are not resistant to heat. Ethanol as a solvent for extraction is very good, because ethanol is a semi-polar solvent with a polarity index [32]. Ethanol as a semi-polar solvent can be used to extract alkaloid, flavonoid, phenol, tannins and saponin compounds. Ethanol is used as a safe solvent for medicines [30].

This analysis aims to determine the levels of total alkaloids, flavonoids, phenol, tannins and saponins in the extract obtained from the standard curve equation. The absorbance data produces a standard curve line equation  $y = 1.88853e-004 x - 3.95444e-004$  with a value of  $r^2 = 0.99926$  (Fig. 1). The total flavonoid content of 5.11 mg QE/g extract was obtained from the quercetin standard curve equation, namely  $y = 0.00318777 x - 0.00255132$  with  $r^2 = 0.999921$  (Fig. 2).

The use of gallic acid with a concentration of 10 mg, with the addition of *folin-ciocalteu* reagents as much as 0.5 ml and aquades as much as 7.5 ml by producing absorbance data that produces a standard curve equation  $y = 0.00767076 x - 0.00212888$  with a value of  $R = 0.99953$  (Fig. 3). From this equation, the total phenol content was 7.64 mg GAE/g extract. The concentration of 10 ml *folin ciocalteu* reagent added 0.1 ml and 10 ml aquabides to the absorbance data resulted in a standard curve line equation  $y = 0.0116490 x + 2.92199$  with a value of  $r^2 = 0.99996$  with a value of  $R = 0.99953$  (Fig. 4).

The concentration of  $H_2SO_4$  25% 2 ml, then in autoclave for 120 minutes, extracted with ether, The addition of aquades as much as 1 ml, then the extraction results in the vortex for 5 minutes, then add anisaldehyde as much as 50  $\mu$ l and the addition of 50% sulfuric acid as much as 2 ml. The absorbance data produces a standard curve line equation  $y = 9.44156e-004 x - 0.00380439$  with a value of  $r^2 = 0.99959$  (Fig. 5).

Fig. 3 shows that the yield produced from the extract of the taka plant, both tubers, stems and leaves with 96% ethanol solvent, namely 4.17%, shows that the active component was successfully extracted. The use of extraction to separate bioactive compounds such as secondary metabolites from a plant by using certain solvents. There are several factors that can affect the yield, including plant varieties, plant age, plant maintenance process, and environmental factors.

#### IV. CONCLUSIONS

From the results of research on *Tacca* plant extraction and the screening of phytochemical compounds of *Tacca* plant (*Tacca leontopetaloides* L.) ethanolic extract using the UV-vis Spectrophotometry Method on medicinal plants. There are phytochemical content in all *Tacca* plant organs such as leaves, stems and tubers. There are 5 types of compounds, namely flavonoids, phenols, alkaloids, saponins and tannins used by several ethnic groups in North Maluku (Gorango, Beksili and Gurua). *Tacca* plant can be used as an anti-biotic in the medical field, anticancer, anti-viral, antibacterial and pain reliever in the medical field. Parts used of the *Tacca* plant are tubers, leaves and stems. Local knowledge in use medicinal plants owned by ethnic groups in Indonesia is a source of medicinal ingredients that can studied further in the context of searching and alternative medicine development.

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