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Research Article

Physico-Chemical and Qualitative, Quantitative Chemical Compounds Analysis of *Pleurotus florida* in Thanjavur, Tamilnadu, India.

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Abstract: An extensive range of lignocellulosic waste is used in mushroom growing, which is recognized as a very successful way to recycle agricultural waste and make food. Primary and secondary metabolites analysis is fundamental for further pharmaceutical studies. In this present study, physico-chemical analysis viz., moisture content, ash value, crude fat, crude fibre content, carbohydrates and protein content were evaluated in *Pleurotus florida*. Phytochemical analysis of in*Pleurotusflorida* was done using four different solvents like hexane, chloroform, methanol and aqueous, using a standard protocol. The result of the present study showed moisture content (7.22±0.03mg/g), ash value (3.20±0.00 mg/g), crude fat (4.50±0.00 mg/g), crude fibre content (2.81±0.08 mg/g), carbohydrates (0.18±0.06 mg/g) and protein (0.36±0.11 mg/g). Qualitative analysis of *P. florida* showed the presence of alkaloids, anthraquinone, flavonoid, glycosides, phenol, saponin, steroid, tannin and terpenoid. The above compound is further estimated quantitatively. Aqueous extract of *P.florida* showed alkaloid (0.42±0.02 mg/g), anthraquinone (0.65±0.00 mg/g), flavonoid (9.19±0.00 mg/g), glycosides (3.40±0.04 mg/g), phenol (4.74±0.00 mg/g), saponin (12.1±0.03 mg/g), tannin (26.1±0.00 mg/g) and terpenoid (0.73±0.01 mg/g). Methanolic extract showed alkaloid (2.91±7.85 mg/g), anthraquinone (3.48±0.06 mg/g), steroid (2.34±0.01 mg/g), tannin (21.5±0.00 mg/g) and terpenoid (0.45±0.03 mg/g). The other compounds like alkaloid (0.78±0.00 mg/g), anthraquinone (1.79±0.01 mg/g), flavonoid (10.9±0.04 mg/g), glycosides (12.8±0.05 mg/g), phenol (39.3±0.00 mg/g), saponin (35.8±0.00 mg/g), steroid (3.47±0.00 mg/g) and terpenoid (0.34±0.02 mg/g) were showed in chloroform extract of *P.florida*. In hexane extract, an alkaloid (0.59±0.03 mg/g), saponin (2.58±0.00 mg/g), tannin (426±0.00 mg/g) and terpenoid (0.38±0.01 mg/g) were estimated. Finally, the secondary metabolites were employed as an ontology tool (Protégé), and the outcomes were displayed in diagrammatic form. Protégé tool is one alternative technology for using smart art diagrams like bar and pie diagrams in future quantitative analysis response compounds for further immune system development studies.

Keywords: Oyster mushroom-*Pleurotus florida*, Physico-chemical analysis, Secondary metabolites analysis, Qualitative, Quantitative analysis and Computational application- Protege tool.

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1. INTRODUCTION

Oyster mushrooms (*Pleurotusflorida*) are edible fungi belonging to Basidiomycetes and are increasingly becoming popular as protein-rich delicious vegetable[1]. Mushrooms are rich in proteins, vitamins, and minerals and are popularly known as vegetarian meat, and it contains numerous essential amino acids required for the human body[2]. *Pleurotus*is a critical medicinal mushroom, and its regular intake prevents many diseases, reduces the infection probability and increases immunity.[3] Many studies on the health effects of *Pleurotus* species have been reported, such as immune-stimulating activity.[4] Numerous compounds (proteins, peptides, polysaccharides, lipid derivatives, glycoproteins, etc.) with therapeutic properties have been isolated far from fungi, including *Pleurotus* sp. The most abundant polysaccharides are chitin, hemicellulose, glucans, mannans, xylans, and galactans. The most significant interest is the high molecular Weight of polysaccharides.[5,6]In morphologically, the *Pleurotus* species pileus shows 30-200 mm broad, oyster-shaped, spatulate or lingulate. The fruit bodies are white to light yellow, thin to thick, fleshy, radially fibrous and odour fungoid. In the microscopic view, the Spores are cylindrical-ellipsoidal, smooth, hyaline, with vacuoles. Spores are dingy grey or pale lilac grey. Nowadays, great interest resides in identifying pharmaceutically and medicinally important natural secondary metabolites in fungi and bacteria through exploration of their biosynthetic mechanisms.[7,8,9,10]Mushrooms has long been valued as delicious and nutritious food in many countries. Mushrooms are helpful foods as well for patients suffering from diabetes, ulcer and lung diseases.[11,12,13]Phytochemical constituents in plant materials are biologically active chemical compounds which are essential for regular metabolic activities. Mushrooms are a rich source of biologically active components.[14] Natural antioxidants like flavonoids, tannins and phenols are vital for healthy body functions. Phytochemicals are the products of the secondary metabolites in plants and mushrooms. They mainly belong to terpenes and derivatives, phenylpropanoids, isothiocyanates, and Sulphur compounds. They are often present as glycosides.[15-17]Modern sciences are fundamentally related to the achievements in computer science, and the technical frontiers are pushed continuously forward. Apart from the pure physical functionality, to serve as a magnifier to observe more and more details in space, it is now a combined technical and scientific entity, around which the complexity is handled by computational means.[18,19]A variety of computational tools with different algorithms and designing software may be utilized to reduce the time and cost-effective production of secondary plant metabolites[9]. The use of ontologies began in the biological sciences around 1998 with the development of Gene Ontology. The principal components of ontologies are the classes and relations of the analysis of the Chemical compound like plants and mushrooms.[20,21]. The present study aims to analyze physico-chemical, qualitatively and quantitatively Chemical compounds in *Pleurotusflorida*. The objectives are collecting the cultivated *P.florida* , and to study physic-chemical compounds such as moisture, ash, crude fat, crude fibre, carbohydrates and protein were analyzed in *Pleurotusflorida.* Analysis of the Chemical compound in *Pleurotusflorida* using four different types of solvents hexane, chloroform, methanol, and aqueous were also performed.

2. MATERIALS AND METHODS

2.1. Sample collection

The *Pleurotusflorida* sample has been collected from MM Mushroom Farm, Karanthai, Thanjavur. The fruit bodies are dried under controlled conditions and used for other processes.

2.1.1. Identification

The *Pleurotusflorida* fungi were authenticated with SPCF22 by the Department of Mycology, A.V.V.M. Sri Pushpam College (Autonomous), Poondi, Thanjavur, Tamilnadu, India.

2.1.2. Macroscopic Characters

P. florida produced fruit bodies with significantly longer stipes of 4.79 cm, a Pileus length maximum of 6.70 cm, Pileus width of 7.88cm. The thickness of the pileus is 6.89 mm—the margin of *P.* Florida has dentate, wavy and entire, enrolled type pileus margins. And the fruit bodies of *P. florida* were white (Fig.1).

2.1.3. Microscopic Characters

P.florida cap convex, soft imbricated glabrous, mist, and whitish. Gills broad decurrently, anastomosing at the base, white. The stem is generally shorter and hairy like structure present at the bottom. Typically, four spores are produced on a basidium. The spores are exogenous in origin, oblong white, 7.6-10 µm long (Fig.2).

Fig.1 Macroscopic view of *P.florida*

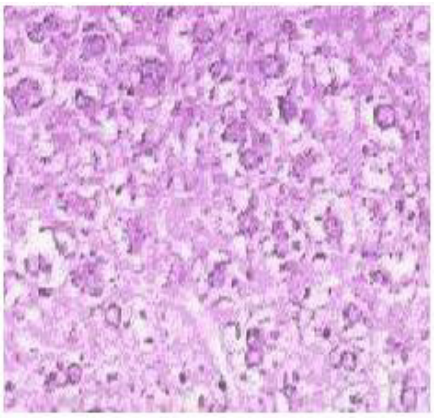

Fig.2 Microscopic view of *P.florida*

2.2. *Physico-chemical analysis of Pleurotusflorida*

2.2.1. *Estimation of moisture*

The Petri dish was washed thoroughly and placed in the oven to dry. Next, 5g of the sample was placed in a pre-weighed Petri dish and then in an oven to dry at 105° C for two hours. Finally, the dish and dry samples were transferred to a desiccator to cool at room temperature before being weighed again. The experiments were repeated until constant Weight was obtained[22].
Calculation:

Moisture (%) = (W1- W2) *100 / W1- W

Where,
W1 = Weight in gm of the dish with the material before drying
W2 = Weight in gm of the dish with the material after drying
W = Weight in gm of the empty dish

2.2.2. *Estimation of ash*

The total ash content of a substance is the percentage of inorganic residue remaining after the organic matter has been ignited. Therefore, 2g of the pulverized organic and standard mushroom powder samples were placed in a crucible and ignited in a muffle furnace at 550° C for 6 hours. It was then cooled in a desiccator and weighed at room temperature to get the Weight of the ash[23].

Crude ash (%) = ($W2-W1$) / $Weightofsample$ × 100

Where: W1 = Weight of empty crucible, and W2 = Weight of crucible with ash.

2.2.3. *Estimation of crude fat*

One gram of crushed and dried mushroom powder sample was taken in the paper thimble and kept in a pre-weighed flask of the fat extractor. The petroleum ether of 80ml was poured into the flask and refluxed for 8 hours. The flask was cooled in a desiccator, and the Weight of the crude fat extracted was taken. The percentage of oil fat was determined by using formula[24]. Calculation:

$$\text{Increase in reducing power } (\%) = \frac{\text{A test - A std}}{\text{A std}} \times 100$$

2.2.4. *Estimation of crude fibre*

2g of the mushroom powder sample was defatted with petroleum ether and then boiled under reflux for 30 minutes with 200 mL of a solution containing 1.25g of H_2SO_4 per 100 mL of solution. The solution was then filtered through linen on a fluted funnel. It is then washed with boiling water until the washings are no longer acidic. Next, the residue was transferred to a beaker and boiled for 30 minutes with 200 mL of a solution containing 1.25g of carbonate-free NaOH per 100 mL. The final residue was filtered, washed, and ignited asbestos in a Gooch crucible. And dried in an electric oven, then weighed. Finally, it was incinerated, cooled and again weighed[25].

The percentage of crude fibre was calculated as % C.F. = Loss of Weight after incineration x 100

2.2.5. *Estimation of carbohydrate*

Hundred mg of leaf and fruit of mushroom powder sample were hydrolyzed in a boiling tube with 5 ml of 2.5 N HCl in a boiling water bath for 3 hours. It was cooled to room temperature, and solid sodium carbonate was added until effervescence ceased. The contents were centrifuged, and the supernatant was made to 100 ml using distilled water. From this, 0.2 ml of sample was pipetted out and made up the volume to 1 ml with distilled water. Then 1.0 ml of phenol reagent was added, followed by 5.0 ml of sulphuric acid. The tubes were kept at 25-30°C for 20 min. The absorbance was read at 490 nm[26].

2.2.6. *Estimation of protein*

Ten ml of the sample was centrifuged at 3,000 rpm for 10 min. First, 0.2 ml of supernatant was taken and made up in 1 ml with distilled water. Then added, 2.0 ml of alkaline copper reagent was, and the tubes were stood for 10 minutes. After, 0.5 ml of Folin's Ciocalteu'sreagent is added and stored in a dark place for 30 minutes. The blue colour developed in test tubes was measured at 660 nm. The standard curves were calibrated in bovine serum albumin[27].

2.3. *Chemical analysis of Pleurotusflorida*

2.3.1. *Preparation of mushroom sample*

The powdered specimens were mixed with aqueous, methanol, chloroform and hexane separately as used in the

standard procedures of[28-30] for determination of the bioactive constituents.

2.3.2. Qualitative Analysis of Chemical compound

Preliminary chemical compound analysis was carried out using the prepared extracts of the sample in different solvents per the standard methods described. [31,32,33]

2.3.3. Detection of Alkaloids

- **Mayer's Test**

The extract was dissolved in the diluted HCl and filtered. Mayer's reagent was used in the filtered sample and found the form of a yellow precipitate, indicating the presence of alkaloids.

2.3.4. Detection of Anthraquinones

- **Borntager's Test**

Five grams of *P. florida* extract was boiled with dilute sulphuric acid in a water bath. Then it was filtered and allowed to cool. A few drops of 10% NH_3 were added to the filtered sample and heated to form pink to red colour indicated anthraquinones.

2.3.5. Detection of Coumarin

- **NaOH test**

One mL of 10% NaOH was added with one mL of *P. florida* sample to form yellow colour indicating the presence of coumarin.

2.3.6. Detection of Flavonoids

- **Ammonia Test**

Two ml of *P. florida* extract was taken in a 10 mL test tube with a few drops of 1% ammonia solution. The yellow colour indicates the presence of flavonoids.

2.3.7. Detection of Glycosides

Two ml of *P.florida* extract were dissolved in 1 ml of glacial acetic acid containing one drop of ferric chloride solution and then layered with 1 ml of concentrated sulphuric acid. A brown ring appears at the interface, indicating the presence of glycosides.

2.3.8. Detection of Phenols

- **Ferric chloride test**

Ten grams of *P. florida* extract was treated with a few drops of ferric chloride solution to form a bluish-black, which indicates the presence of a phenol compound in the sample.

- **Lead acetate test**

Ten grams of *P. florida* extract was treated with a few drops of lead acetate solution to form a yellow precipitate, indicating the presence of a phenol compound in the sample.

2.3.9. Detection of Saponin

- **Forth Test**

Two grams of *P. florida* extract were added to 5 ml of distilled water. The mixture was shaken vigorously and appeared stable, persistent forth. Next, a few drops of olive were added with two ml of the fourth extract. Again, the mixture was shaken vigorously, resulting in emulsion formation.

2.3.10. Detection of Steroids

Two ml of acetic anhydride solution was added with five grams of *P. florida* extract and 2 ml of H_2So_4. The colour changed from violet to blue (or) green, indicating steroids.

2.3.11. Detection of Terpenoids

- **Salkowski Test**

Five grams of *P. florida was* extracted and mixed with 2 ml of chloroform, and 3 mL of concentrated H_2So_4 was carefully added to form a layer. The appearance of the reddish-brown colour on the inner surface indicates the presence of terpenoids.

2.3.12. Detection of Tannin

A small quantity of *P.florida* extract is mixed with water and heated in a water bath. The mixture was filtered, and ferric chloride was added to the filtered sample, with a dark green colour indicating tannin.

2.4. Quantitative analysis of Chemical analysis inPleurotusflorida

2.4.1. Estimation of Alkaloids

One gram of *P. florida* was weighed and taken in a 250 ml beaker; added 200 ml of 10% acetic acid was in the ethanol mixture, and it was covered and allowed to stand for 4 hrs. It was filtered, and the extract was concentrated in a water bath to one-quarter of the original volume. Concentrated NH_4OH was added dropwise to the extract until the precipitation was completed. The whole solution was allowed to settle, and the precipitate was collected and washed with diluted NH_4OH and then filtered. The residue of the alkaloid was dried and weighed[30].

2.4.2. Estimation of Anthraquinone

One gram of *P. florida* sample was added to 10 ml of 70% alcohol for 2 hours and after using lead acetate and Na_2HPO_4, filtered the *P. florida* sample was before adding freshly prepared buljet reagent (75 ml of aqueous picric acid added to 5 ml of 10% aqueous NaOH solution). The blank solution contains distilled water and buljet reagent. The quantity values were calculated at 495 nm[30].

2.4.3. Determination of Flavonoid

The total flavonoid content of each extract was estimated by the method of Zhishen*et al*., 1999. Based on this method, each sample (1.0ml) was mixed with 4ml of distilled water and subsequently added 0.30ml of a $NaNO_2$ solution (10%). After 5 min, 0.30ml AlCl3 solution (10%) was added, and 2.0ml of

NaOH solution (1%) was added to the mixture. Immediately, the mixture was thoroughly mixed, and absorbance was determined at 510 nm versus the blank. A standard curve of quercetin was prepared (0-12mg/ml), and the results were expressed as equivalents (mg quercetin/gm dried extract) [34].

2.4.4. Determination of glycosides

8ml of the extract was transferred to a 100ml flask, and 60ml of water and 8ml of 12.5% lead acetate were added, mixed, and filtered.50ml of the filtrate was transferred into another 100ml flask, and 8ml of 47% Na_2HPO_4 was added to precipitate excess Pb^{2+} ion. This was mixed and completed to volume with water. The mixture was filtered twice through the same filter paper to remove excess lead phosphate. Next, 10ml of the purified filtrate was transferred into a clean Erlyn – Meyer flask and treated with 10ml Baljet reagent. A blank titration was carried out using 10ml distilled water and 10ml Baljet reagent. This was allowed to stand for one hour for complete colour development. Then it measured at 495nm[35].

2.4.5. Estimation of Phenols

The fat-free sample was boiled with 50 ml of ether solution at 15 min to extract the phenolic compound. Next, 5 ml of the respective extract was pipetted out into a 50 ml flask; 10 ml of distilled water was added. 2 ml of NH_4OH solution and 5 ml of concentrated amyl alcohol were added. It was left to react for 30 min then colour was developed. Then it was measured at 550nm[30].

2.4.6. Determination of Saponins

Twenty grams of sample were dispersed in 200 ml of 20% ethanol. The suspension was heated over a hot bath for 4 hours with continuous stirring at about 55°C. The mixture was filtered, and the residue was re-extracted with another 200ml of 20% ethanol. The combined extracts were reduced to 40 ml over a water bath at about 90°C. The concentrated sample was transferred into a 250 ml separator funnel, and 20 ml of diethyl ether was added and shaken vigorously. The aqueous layer was recovered, while the ether layer was discarded. The purification process was repeated. Next, 60 ml of n-butanol was added. The combined n-butanol extracts were washed twice with 10 ml of 5% aqueous sodium chloride. The remaining solution was heated in a water bath. After evaporation, the respective samples were dried in the oven to a constant weight. The percentage of saponin content was calculated[36].

2.4.7. Estimation of total Steroids

The *Pleurotusflorida* extract (1 g) was macerated with 20 ml of ethanol and filtered. Two ml of chromagen solution were added, leaving the solution to stand for 30 minutes. The absorbance was read at 550nm[30].

2.4.8. Determination of Tannin

The tannin content in each sample was determined using insoluble polyvinyl-polypirrolidone (PVPP). First, a small quantity (1 ml) of the extract was dissolved in methanol (1 mg/ml), in which the total phenolics were determined was mixed with 100 mg PVPP, vortexed, kept for 15 min at four °C and then centrifuged for 10 min at 3,000 rpm. In the clear supernatant, the non-tannin phenolics were determined the same way as the total phenolics. Therefore, tannin content was calculated as a difference between full and non-tannin phenolic content[34].

2.4.9. Estimation of Terpenoids

The extract of *Pleurotusflorida* 100mg was taken and soaked in 9ml of methanol and aqueous for 24 hours. Next, filtrate the extract mixed with 10mL of petroleum ether using a separating funnel and finally filtered. Finally, the extract was separated into pre-weighed glass vials (wi) and waited for its complete drying (wf) was evaporated, and the yield (%) of total terpenoids contents was measured by the following formula (wi-wf/wi×100) [30].

3. STATISTICAL ANALYSIS

The quantitative analysis of *P.florida* values was studied in triplicate, and the results were expressed with error bars. In addition, the mean and standard deviation were determined and where appropriate, using the statistical package in Microsoft Excel version 2007.

4. RESULTS

In a physico-chemical analysis of *P. florida* sample containing moisture (7.22±0.03), ash (3.20±0.00), crude fat (4.50±0.00), crude fibre (2.81±0.08), carbohydrates (0.18±0.06) and protein (0.36±0.11). The results are recorded in Table.1.

Table1: Physico-chemical Analysis of *Pleurotus florida*

Name of the compound	Quantity (mg/g)
Moisture	7.22 ±0.03
Ash	3.20±0.00
Crude fat	4.50±0.00
Crude fibre	2.81±0.08
Carbohydrates	0.18±0.06
Protein	0.36±0.11

In preliminary chemical compound analysis, chemical compounds such as alkaloid, anthroquinone, coumarin, flavonoid, phenol, saponin, steroid, tannin and terpenoids using various solvent extracts like aqueous, methanol, chloroform and hexane. Chemical analyses like saponin and terpenoids are strongly present in the aqueous extract. Other compounds such as alkaloids, anthraquinone, flavoniod, Glycosides, phenol, and tannin are also moderately present. Coumarin and steroid compounds were absent in this *Pleurotusflorida* extract. In the methanolic extract, the alkaloid compound was strongly present. Anthraquinone, steroids, and tannin were also present moderately. Other compounds like coumarin, flavonoid, Glycosides, phenol, and saponin are absent. A chemical compound like saponin were strongly present, but

alkaloids, anthraquinone, flavonoid, glycosides, phenol, steroid and terpenoid were moderately present. Other compounds like coumarin and tannin were absent in this chloroform solvent extract respectively.In hexane extract, saponin and terpenoid compounds are strongly present. Compounds like alkaloids and tannin were moderately present. Other compounds like anthraquinone, coumarin, flavonoids, glycosides, phenol and steroid were absent in the hexane solvent extract of *P.florida*. In various solvent extract like coumarinChemical analysis were absent. The detailed result of the preliminary bioactive chemical compound analysis has been recorded in Table.2.

Table.2: Preliminary Chemical compound analysis of *Pleurotusflorida*

S.No	Name of the Test	Different Solvent Extract of *Pleurotusflorida*			
		Aqueous	**Methanol**	**Chloroform**	**Hexane**
1	Alkaloid	+	++	+	+
2	Anthraquinone	+	+	+	-
3	Coumarin	-	-	-	-
4	Flavonoid	+	-	+	-
5	Glycosides	+	-	+	-
6	Phenol	+	-	+	-
7	Saponin	++	-	++	++
8	Steroid	-	+	+	-
9	Tannin	+	+	-	+
10	Terpenoid	++	+	+	++

(++) strongly Present, (+) moderately Present, (-) absent

The following Chemical analysis, such as alkaloid, anthraquinone, flavonoid, phenol, saponin, steroid, tannin and terpenoids, were quantitatively analyzed in different solvent extracts of *P.florida*. In an aqueous extract of *P.florida* showed alkaloid (0.42±0.02), anthraquinone (0.65±0.00), flavonoid (9.19±0.00), glycosides (3.40±0.04), phenol (4.74±0.00), saponin (12.1±0.03), tannin (26.1±0.00) and terpenoid (0.73±0.01). Methanolic extract showed alkaloid (2.91±7.85), anthraquinone (3.48±0.06), steroid (2.34±0.01), tannin (21.5±0.00) and terpenoid (0.45±0.03). The other compounds like alkaloid (0.78±0.00), anthraquinone (1.79±0.01), flavonoid (10.9±0.04), glycosides (12.8±0.05), phenol (39.3±0.00), saponin (35.8±0.00), steroid (3.47±0.00) and terpenoid(0.34±0.02) were showed in chloroform extract of *P.florida*. In respective alkaloid (0.59±0.03), saponin (2.58±0.00), tannin (426±0.00) and terpenoid (0.38±0.01) were demonstrated in the hexane extract of *P.florida*.The results were recorded in Table.3 and Fig.3.

Table.3: Quantitative Chemical compound analysis of *Pleurotusflorida*

S.No	**Name of the Compound**	**Different Solvent Extract of *Pleurotusflorida*(mg/g)**			
		Aqueous	**Methanol**	**Chloroform**	**Hexane**
1	Alkaloids	0.42±0.02	2.91±7.85	0.78±0.00	0.59±0.03
2	Anthraquinone	0.65±0.00	3.48±0.06	1.79±0.01	-
3	Flavonoid	9.19±0.00	-	10.9±0.04	-
4	Glycosides	3.40±0.04	-	12.8±0.05	-
5	Phenol	4.74±0.00	-	39.3±0.00	-
6	Saponin	12.1±0.03	-	35.8±0.00	2.58±0.00
7	Steroid	-	2.34±0.01	3.47±0.00	-
8	Tannin	26.1±0.00	21.5±0.00	-	4.26±0.00
9	Terpenoid	0.73±0.01	0.45±0.03	0.34±0.02	0.38±0.01

Standard deviation ±error

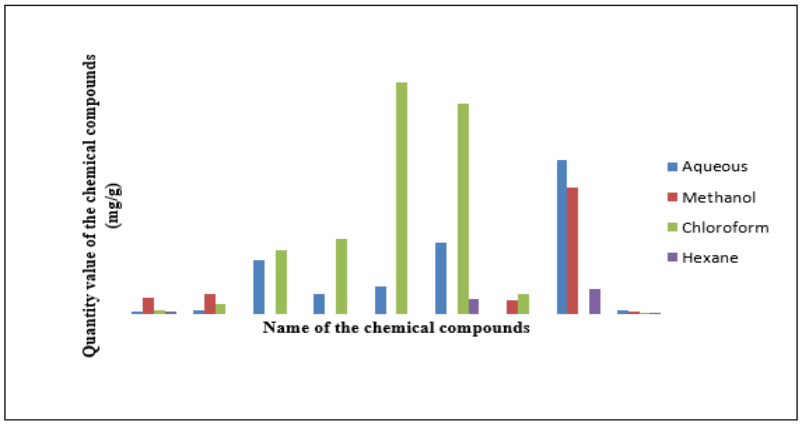

Fig.3. Quantitative chemical compound analysis of *Pleurotusflorida*

The quantitative analysis value has been inserted into the ontology development tool. The computational tool shows the diagrammatic structure of *P.florida* Chemical analysis. The results were recorded in Fig.4 to Fig.9.

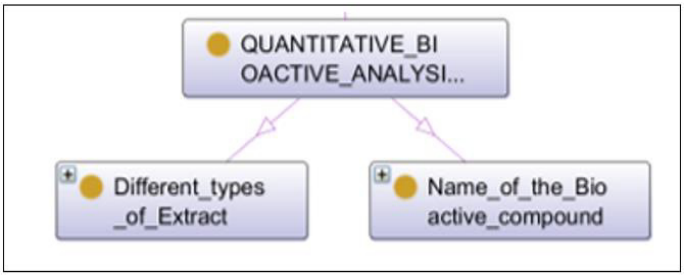

Fig 4: Computational analysis of *P.florida*

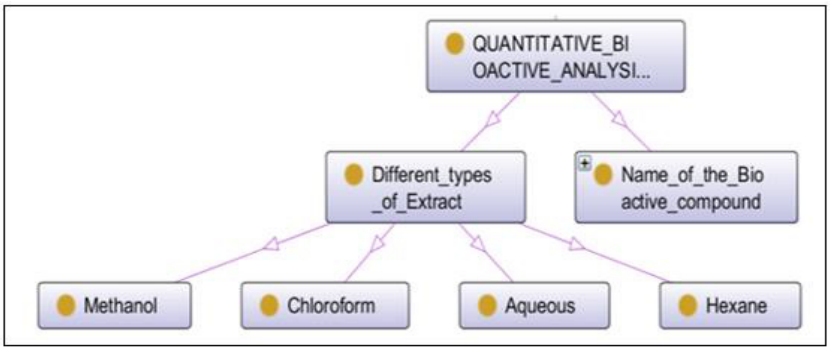

Fig5: View for types of solvents extracts of *P.florida*

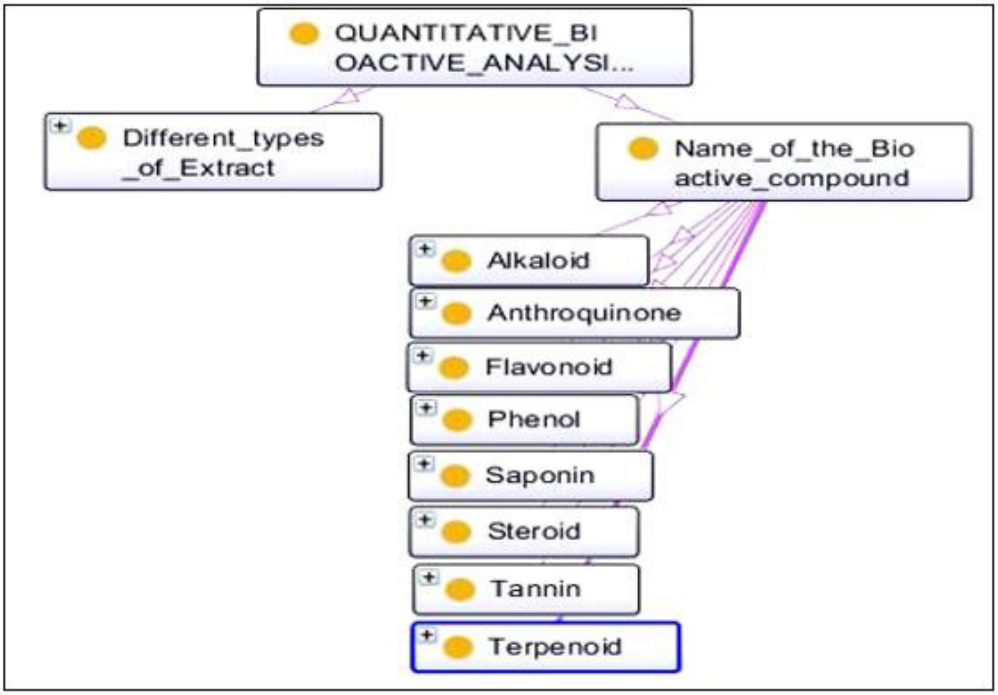

Fig 6: View for Names of the compounds in *P.florida*

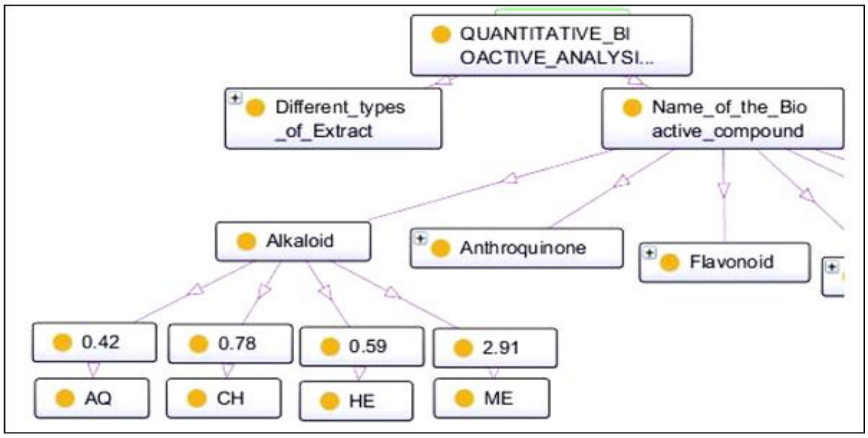

Fig 7: View for the individual compounds of *P.florida* in the Ontology tool

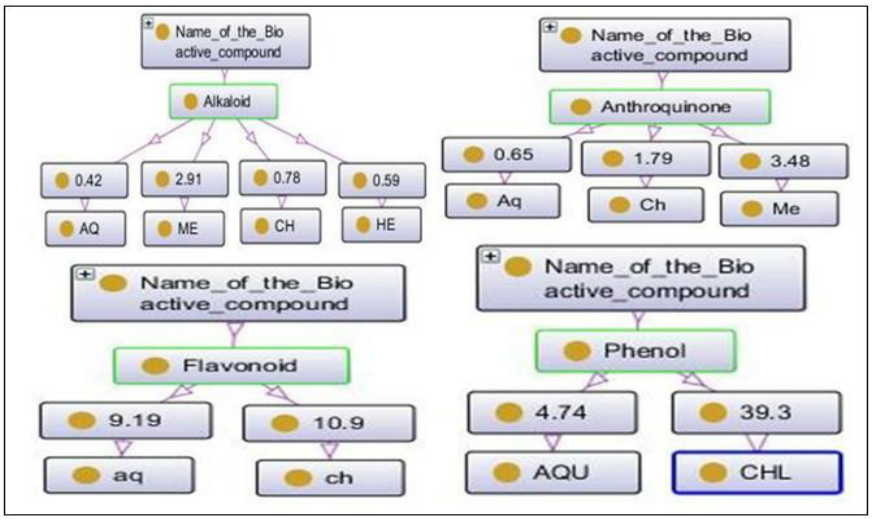

Fig 8: View for values of a chemical compound in *P.florida* in the Ontology tool

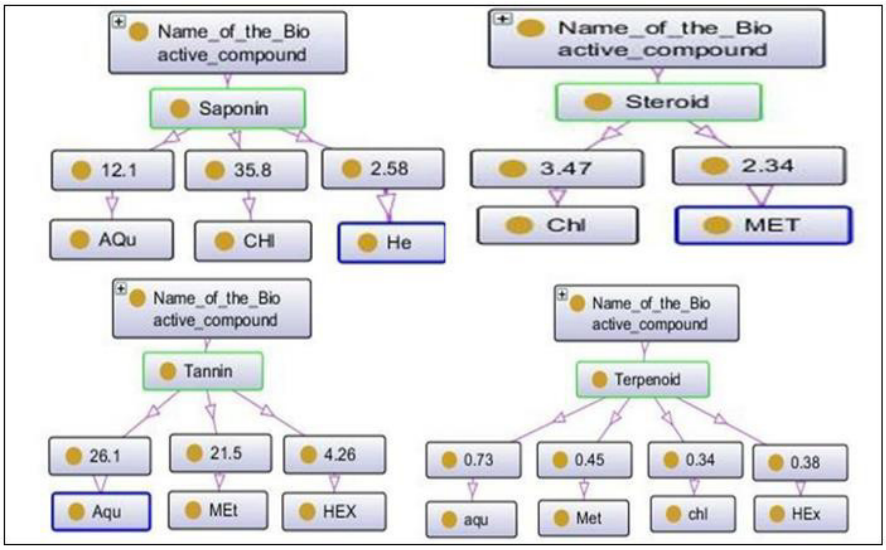

Fig 9: View for values of chemical compound analysis in *P.florida* in the ontology tool

5. DISCUSSION

Montes *et al*.[38] reported that one of the challenges in modern society is reducing meat consumption and formulating new meat products, considering health and sustainability aspects. In this regard, mushrooms are considered a promissory source of Chemical analysis to produce healthier meat products. Shubhra Shukla and Jaitly[39] analyzed that mushrooms have medicinal and nutritional value and have been extensively used as human food from the time immortal. Mushrooms have antimicrobial and antioxidant properties. The presence of high contents of free amino acids in mushrooms can enhance the sensory properties of meat products. These works help our study calculate the other Chemical analysis present in *Pleurotusflorida* mushroom. Eman Mostafa Mohamed and Fatma Ali Farghaly[40] reported in their work the Chemical

composition of the fresh and dried mushroom of *Pleurotusostreatus*and their bioactive secondary metabolic products, and a total of hundred and seven metabolites were detected in tested samples. These include 56 metabolites only seen in the fresh sample, 37 in the dry example, and 14 in both samples. In this work, analysis of bioactive compounds in *Pleurotusflorida* showed that eight chemical analyses had been detected using four different types of extracts. In quantitative analysis, the aqueous and chloroform extract of the test sample shows a high quantity. Like methanolic and hexane extract has been observed, indicating a moderate quantity amount. Pratibha Pansaria[41] investigated System biology approaches that incline the researchers towards the medicinal plant based on drug discovery as system biology approaches to reduce the risk of failure and make the drug discovery process streamlined and cost-effective. Furthermore, we will likely see an increase in the volume and quality of computational data, with improved accuracy of software packages and algorithms shortly. In the present research work, computational technology ontology development tools create the quantity works to produce a diagrammatic form. It shows easily understand of the presence of compounds and their amount of quantity. Robert Hoehndorf*et al* [21] Studied ontologies widely used in biological and biomedical research. Their success lies in their combination of four main features in almost all ontologies. In my work, the ontology tool is efficient, fast and highly portable. Its strength lies in its built-in functions. It is well suited for structured programming. It can extend itself. The specific characteristics are low-level access to computer memory by converting machine addresses to a typed pointer, functions, structures and mathematical functions. The class has been used to give a flow chart of the overall work easily related to one another compounds.

6. CONCLUSION

In the present investigation, the chemical compound of *Pleurotusflorida* is analyzed. In the preliminary study of the chemical compound analysis, four different types of solvents were taken to observe eight chemical analyses recorded in *P.florida.* In the quantitative analysis, eight compounds were screened using four other solvents. The results showed aqueous and chloroform solvents contain many chemical compounds. The methanolic and hexane solvents showed a moderate amount of Chemical analysis. The quantitative values of *P.florida* results were diagrammatically represented by using ontology development from computational technology. From quantitative analysis, highly prevalent Chemical analyses have been investigated.

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8. AUTHORS CONTRIBUTION STATEMENT

Dr S. Gomathi designed and finalized the manuscript of the study. Dr A. Panneerselvam and Dr V. Ambikapathy provided valuable suggestions for this work Ms Gayathri. G collected samples, analyzed the work, and prepared the draft manuscript, analysis and alignment of the manuscript. Dr S. Gomathi discussed the methodology. All authors read and approved the final version of the manuscript.

9. CONFLICT OF INTEREST

Conflict of interest declared none.

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