PROJECT WORK REPORT

ON

Phytochemicals Screening of The pulp of *Tamarindus indica*

Submitted To

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LETTER OF TRANSMITTAL

15-05-2019

Ms. FouziaAkter

Senior Lecturer

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Subject: Submission of Project work report

Dear Mam,

I would like to take this opportunity to thank you for the guidance and support you have provided me during the course of this report. Without your help, this report would have been impossible to complete.

To prepare the report I collected what I believe to be most relevant information to make my report as analytical and reliable as possible. I have concentrated my best effort to achieve the objectives of the report and hope that my endeavor will serve the purpose. The practical knowledge and experience gathered during report preparation will immeasurably help in my future professional life. I request you to excuse me for any mistake that may occur in the report despite of my best effort.

I would really appreciate it you enlighten me with your thoughts and views regarding the report. Also, if you wish to enquire about an aspect of my report, I would gladly answer your queries.

Sincerely Yours,

Tisha Sarkar

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LETTER OF AUTHORIZATION

15-05-2019

Dr. Md. Bellal Hossain

Head

Department of Nutrition & Food Engineering

Daffodil International University

Subject: Declaration regarding the validity of the Project Work Report.

Dear Sir,

This is my truthful declaration about the "**Project Work Report**" that I have prepared is not a copy of any Thesis Report which previously made by any other students. I also express my honest support for the facts that this same project report has not been used before to fulfill my other course of action, and that it will not be submitted to any other person in the future.

Sincerely Tisha

Sarkar ID:

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CERTIFICATION OF APPROVAL

I am pleased to certify that the Project Work report on **Phytochemicals Screening of *Tamarindus indica*** conducted by **Tisha Sarkar** bearing respectively **ID No: 152-34-419** of the department of Nutrition and Food Engineering has been approved for presentation and defense/viva-voice.

I am pleased to hereby certify that the data and finding presented in the report are the authentic work of **Tisha Sarkar**. I strongly recommended the report presented by **Tisha Sarkar** for further academic recommendations and defense/viva-voice. **Tisha Sarkar** bears a strong moral character and a very pleasant personality. It has indeed a great pleasure working with them. I wish them all success in life.

Professor Dr. Md. Bellal Hossain

Head

Department of Nutrition and Food Engineering

Daffodil International University

Fouzia Akter, 15-05-19

Fouzia Akter

Associate Professor

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ABSTRACT

Phytochemical are bioactive compounds obtained from the plants are widely applied in the traditional herbal medicine. The local people are used their herbal medicine to cure the various diseases such as hypertension, diabetes, high blood pressure etc. The objective of the present study was to screen such a phytochemicals as well as the mineral content in selected medicinal plant extracts.

I have taken *Tamarindus indica* for analysis.

INTRODUCTION

Phytochemicals are generally originated from the plant sources are nothing but the bioactive compounds also known as secondary metabolites. There are two types of metabolism produced in plant via primary metabolites and secondary metabolites. Primary metabolites are important for the plants and regular metabolism such as growth and development .

Secondary metabolites produced by plants may have little need for them. These are synthesis in almost all plants of the plant like bank leaves, stem, root, flowers, fruits, seed etc. during post several years, phytochemicals have been used worldwide as the traditional herbal medicine .(Asian .J.Plant.Sci , 2013).

As these pharmaceuticals industries as well as research put a greater emphasis on the phytochemical studies .Also these phytochemical present in the different plant pants are used by the local people for healing of certain disorders.

Herbal medicine is an essential part of the healthcare system, both formal and informal. For its mild weather, India is endowed with the rich heritage of plant world . Plants have often played a pivotal role in classifying multiple ancient illnesses in people and animals. *Tamarindus Indica* (Family: Leguminosae), usually referred to as Tamarind, normally rises in India's tropical and subtropical areas. It is commonly found across the coastal vest, throughout Southeast Asia, Taiwan and China, from Africa to South Asia, Northern Australia.(Indian J Pharmatical, Sci, 2011).
Tamarind has extensive curative implementation in the Indian medicine system, including swelling, diabetes, constipation, indigestion, and halitosis.

The tamarind fruit poultice is applied across Southeast Asia to fever sufferers' foreheads. Pharmaceutical tasks such as antidiabetic and hypoglycemic, antioxidant, anti-ulcer, anti-venom, hepatoprotective, antibacterial, impeding the manufacturing of nitric oxide and serine proteinase agonists have been recorded .The tamarind leaves are one of the elements of an Herbal implementation called Kottamchukkadi Taila, which is utilized topically and massaged for the treatment of rheumatism, body stiffness, pain, inflammation and Vata dosha disorders .Several aspects of the tamarind plant have been used for a long period of time in herbal medicines to treat a wide variety of diseases. (Tropical J Pharmatical Research , 2006).

Material and Methods

Plant material

The required plant parts (*Tamarindus indica*) were collected from Tongi Bazar, Dhaka

Extraction of Plant Material

The extraction of plant material was done by Ethanol,Methanol,and Butanol and water extraction method.

The plant material was allowed to dry naturally i.e. room temperature on shade drying. After completion of drying process, material was ground in a grinder and the powder was kept in an appropriately labeled plastic bottle. For every extraction used 10gm of ground material was weighed using an electronic weighing balance,dissolved in 20ml chloroform ethanol,methanol, butanol and water. Theextract was filtered through filter paper and after extraction was stored in bottle for further analysis.

Phytochemicals analysis

Preliminary qualitative screening for phytochemicals of all these plants species was carried out with the following method.

Results

A. Carbohydrate Test

For Ethanol:

In a tube 2 ml extract treated with few drop of α naphthalene and few drops of con. H_2SO_4.

Result: Observed the formation of purple color ring that indicates the presence of Carbohydrate.

For Methanol:

In a tube 2 ml extract treated with few drop of naphthalene and few drops of con. H_2SO_4.

Result: Observed the formation of purple color ring that indicates the presence of carbohydrate for butanol.

For Butanol:

In a tube 2ml extract treated with few drop of naphthalene and few drop of con. H_2SO_4

Result: Observed the formation of purple color ring that indicates the presence of carbohydrate.

For Chloroform:

In a tube 2 ml extract treated with few drop of naphthalene and few drop of con. H_2SO_4.

Result: Observed the formation of purple color ring that indicates the presence of carbohydrate

For Water:

In a tube 2 ml extract treated with few drop of naphthalene and few drop of con. H_2SO_4.

Result: Observed the formation of no purple color ring found its reddish color indicating the presence of no carbohydrate.

B. Tanin Test

For Ethanol:

In 2ml extract treated 5% of $FeCl_3$

Result: Observed the formation of no color change indicating the presence of no Tanin.

For Methanol:

In 2ml extract treated 5% of $FeCl_3$

Result: Observed the formation of no color change indicating the presence of no Tanin.

For Butanol:

In 2ml extract treated 5% of $FeCl_3$

Result: Observed the formation of yellow color pacified in down and top of water color indicating the presence of no Tanin.

For Chloroform:

In 2ml extract treated 5% of $FeCl_3$

Result: Observed the formation of white color pacified in down and top of water color indicating the presence of no Tanin.

For Water:

In 2ml extract treated 5% of $FeCl_3$

Result: Observed the formation of no color change pacified in indicting the presence of no Tani

C. Foam Test

For Ethanol:

Shake the 2ml of extract and keep it 5 minutes.

Result: After 5 minutes observed the formation of no foam found indicating the presence of no foam.

For Methanol:

Shake the 2ml of extract and keep it minutes.

Result: After 5 minutes observed the formation of no foam found indicating the presence of no foam.

For Butanol:

Shake the 2ml of extract and keep it 5 minutes.

Result: After 5 minutes observed the formation of no foam found indicating the presence of no foam.

For Chloroform:

Shake the 2ml od extract and keep it 5 minutes

Result: After 5 minutes observed the formation of no foam found indicating the presence of no foam.

For Water:

Shake the 2ml of extract and keep it 5 minutes

Result: After 5 minutes observed the formation of found foam indicating the presence of no foam.

D. Flavonoidss test

For Ethanol:

In a tube 2ml extract treated with few drop of sodium hydroxide and dil. Sulfuric acid.

Result: Observed the formation of top of the white pacified indicating the presence of slide flavonoids.

For Methanol:

In a tube 2ml extract treated with few drop of sodium hydroxide and dil. sulfuric acid.

Result: Observed the formation of top of the white pacified indicating the presence of slide flavonoids.

For Butanol:

In a tube 2ml extract treated with few drop of sodium hydroxide and dil. Sulfuric acid.

Result: Observed the formation of no color change indicating the presence of no slide flavonoids.

For Chloroform:

In a tube 2ml extract treated with few drop of sodium hydroxide and dil. sulfuric acid.

Result: Observed the formation of no color change pacified indicating the presence of no slide flavonoids.

For water:

In a tube 2ml extract treated with few drop of sodium hydroxide and dil. Sulfuric acid.

Result: Observed the formation of no color change pacified indicating the presence of no slide flavonoids.

E. Phenol Test

For Ethanol:

In a tube 2ml extract treated with few drop of natural $FeCl_3$ soln.

Result: Observed the formation of no color change indicating the presence of no phenol.

For Methanol:

In a tube 2ml extract treated with few drop of natural $FeCl_3$ soln.

Result: Observed the formation of no color change indicating the presence of no phenol.

For Water:

In a tube 2ml extract treated with few drop of natural $FeCl_3$ soln.

Result: Observed the formation of no color change indicating the presence of no phenol.

For Butanol:

In a tube 2ml extract treated with few drop of natural $FeCl_3$ soln.

Result: Observed the formation of separated color the top and down are yellow indicating the presence of no phenol

For Chloroform:

In a tube 2ml extract treated with few drop of natural $FeCl_3$ soln.

Result: Observed the formation of separated of white pacified indicating the presence of no phenol.

F. Salkowski Test

For Ethanol:

In a tube 2ml extract treated with few drop of H_2SO_4.

Result: observed the formation of no color change indicating the presence of salkowski.

For water:

In a tube 2ml extract treated with few drop of H_2SO_4.

Result: Observed the formation of no color change indicating the presence of salkowski.

For Methanol:

In a tube 2ml extract treated with few drop of H_2SO_4.

Result: observed the formation of reddish brown color but no green into indicating the presence of salkowski.

For Chloroform:

In a tube 2ml extract treated with few drop of H_2SO_4.

Result: Observed the formation of reddish brown color in low but no green color in top indicating the presence of salkowski.

For Butanol:

In a tube 2ml extract treated with few drop of H_2SO_4.

Result: Observed the formation of reddish purple color in low but no green color in top indicating the presence of no salkowski.

G. Sterols and Triter Pens

For Ethanol:

In a tube 2ml extract treated with 1ml of ammonia and shake well.

Result: observed the formation of no color change indicating the presence of sterols and triter pens

For Methanol:

In a tube 2ml extract treated with 1ml of ammonia and shake well.

Result: observed the formation of white pacified indicating the presence of no sterols and triter pens

For Butanol:

In a tube 2ml extract treated with 1ml of ammonia and shake well.

Result: observed the formation of white pacified in top indicating the presence of no sterols and triter pens

For Chloroform:

In a tube 2ml extract treated with 1ml of ammonia and shake well.

Result: observed the formation of white color pacified in low indicating the presence of no sterols and triter pens.

For Water:

In a tube 2ml extract treated with 1ml of ammonia and shake well.

Result: observed the formation of no color change indicating the presence of sterols and triter pens

H. Lead Acetate Test

For Ethanol:

In a tube 2ml extract treated with 3 drop of lead acetate

Result: observed the formation of white pacified indicating the presence of lead acetate

For Methanol:

In a tube 2ml extract treated with 3 drop of lead acetate

Result: observed the formation of white pacified indicating the presence of lead acetate

For butanol:

In a tube 2ml extract treated with 3 drop of lead acetate

Result: observed the formation of white pacified indicating down the presence of lead acetate

For Chloroform:

In a tube 2ml extract treated with 3 drop of lead acetate

Result: observed the formation of white pacified in top indicating the presence of lead acetate

For Water:

In a tube 2ml extract treated with 3 drop of lead acetate

Result: observed the formation of white pacified down indicating the presence of lead acetate

- Selected medicinal plant species for phytochemical analysis

Table 1

No	Plant Species	Local Name	Part Use
1	*Tamarindus indica*	Tetul	Fruits

- Preliminary phytochemical analysis or careened medicinal plant species

Table 2

No	Carbohydrate	Ethanol	Methanol	Butanol	Chloroform	Water
1	Tannin	+	+	+	+	-
2	Foam	-	-	-	-	-
3	Flavonoid	-	-	-	-	+
4	Phenol	+	+	-	-	-
5	Salkowski	-	+	-	+	-
6	Sterols And Triter Pens	-	-	-	-	-
7	Lead Acetate	+	+	+	+	+

Conclusion

From the overall scenario, it is concluded that as the plants studied, found to rich phytochemicals are full of pharmacological and medicinal significance.Further, study is required to find their potential in the mentioned biological properties such as diabetic, hypertension, high blood pressure etc.

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