Proximate analysis, mineral composition and bioactivity of *Verbena bonariensis*

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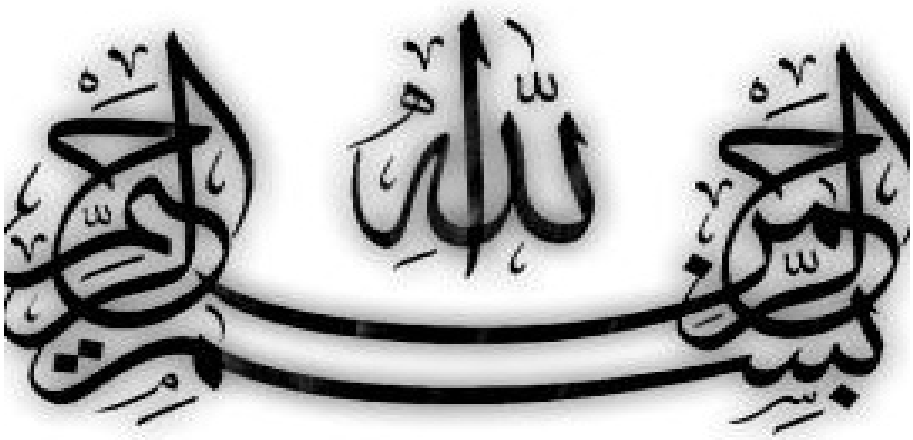

In the name of

Allah,

The most Compassionate,

The most merciful

DEDICATION

Affectionately Dedicated to

MY PARENTS AND HUSBAND

Due to whom Prayers and Cooperation

Will be able to me to reach this status.

ACKNOWLEDGEMENT

All praises to **Almighty Allah**, Creator of the universe, most beneficent and Merciful. He, who blessed me with determination, potential and ability to complete this research work, Peace and blessing of Allah be upon the **Holy Prophet Muhammad (ﷺ)** and his pious progeny, who is the source of knowledge and guidance for the entire world forever.

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From the bottom of my heart I salute to the gratefulness of all those souls that were praying for the completion of this venture.

RESEARCH COMPLETION CERTIFICATE

Certified that the research work contained in this thesis titled" **Proximate Analysis, Mineral Composition and Bioactivity of *Verbena bonariensis***" has been carried out and completed by**, ID 14003140051.** The quantum and the quality of the work contained in this thesis is adequate for the award of Degree of MS/M.Phil.

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DECLARATION

I Mubeen Akhtar W/O Muhammad Ibad Rabbani ID 14003140051. Session 2014-2016 hereby declare that the matter printed in the thesis titled "**Proximate Analysis, Mineral Composition and Bioactivity of *Verbena bonariensis*"** is my own work and has not been printed, published and submitted as research work, thesis or publication in any form in any University, Research institution etc. in Pakistan or Abroad.

Dated_____

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ABSTRACT

*Verbena bonariensis*belongs to family Verbenaceaewhichis famous due toits medicinalproperties. Theaim of this study is to analyze the antimicrobial activity,antifungal activity,mineral contents and proximate analysis of the plant extract.*Verbena bonariensis*exhibited significant antimicrobial and antifungal activity and it shows good antimicrobial behavior against *Salmonella enteric* (18mm) bacterial strain. *Verbena bonariensis*also shows good response against*Fusariumoxysporum*(14mm) and *Aspergillusflavus*(14mm) fungal strain which is helpful in the medicinal field. Proximate analysis shows its nutritional importance. The proteinis present in large quantity (11.19%) and shows medicinal importance of plant in food supplement products. The Mineral analysis was performed on atomic absorption spectrometer which shows Fe is present in large quantity (3129 mg/kg) andit is helpful in treatment of anemia disorder diseases. The above work shows that this plant has medicinal value and can be helpfull in treatment of different diseases.

CONTENTS

CHAPTER 1

INTRODUCTION

INTRODUCTION

1.1 Significance of Plants:

Plants are living organisms which arepresent on the land and also in water. About 300,000 species of plant are present on earth in which 250,000 species make flowers. Plants play a major role in life history because these are big source of oxygen on earth.Plants are essential for animals and humans survival. Plants save us from global warming and absorb excess CO_2 .Plants are present in form of trees, herbs and bushes. Plants are primary producer in food chain.

Humans depend on plants because fruits and vegetables are obtained from plants. About 7000 species are used as food. Wheat corn and rice are major cereals which are obtained from plants. Fruits are good source of carbohydrates and vitamins. Vegetable give us vitamins and minerals and these all are need of human body. Nuts almond coffee, barley tea, sunflower oil, soybean oil and olive oil isobtained from plants. Wood, paper, pulp, cotton and linen hemp etc. are used in industry which is obtained from plants.

The medicinal importance of plants should not be ignored because the plants are also used for the treatment of different diseases. In United States about 60% of population used herbal medicine. In Pakistan 80% population depend on herbal medicine and 40% population in China. Garlic, onion, cabbage, Radish etc., have anti-oxidant properties. Some plant constituents have synergic effect and used for treatment of cancer**. (David 1998)**