Determination of antifungal potential of *aloe vera* gel

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RESEARCH COMPLETION CERTIFICATE

Certified that the research work contained in this thesis titled, "DETERMINATION OF ANTIFUNGAL POTENTIAL OF *ALOE VERA* GEL" has been carried out and completed by ANILA HAMZA, **ID: 15005140007**. The quantum and the quality of the work contained in this thesis is adequate for the award of Degree of MS.

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DECLARATION

I ANILA HAMZA D/O AMIR HAMZA ID: 15005140007 Session **2015-2017** hereby declare that the matter printed in the thesis titled **"DETERMINATION OF ANTIFUNGAL POTENTIAL OF *ALOE VERA* GEL"** 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: _____ _____

(*ANILA HAMZA*)

DEDICATION

"I dedicate my thesis work to my beloved Parents, to my dear Sisters, Brothers and Nephew& Niece to my most respectable Teachers and to every person who taught me even a single word. I respect them from the core of my heart and am indebted to these people, as I would never have been able to complete my research work without their motivation and mentoring."

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*Then the trembling lips and wet eyes praise the greatest man of Universe, the last messenger of **ALLAH, HAZRAT MOHAMMAD (P.B.U.H.),** whom **ALLAH** has sent as mercy for worlds, the illuminating torch, the blessing for the literate, illiterate, rich, poor, powerful, weaker, able and disabled.*

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Anila Hamza

ABSTRACT

Medicinal plants play an important role in traditional treatments to cure a variety of diseases. *Aloe vera* (*A. vera)* is one of these traditional herbal medicinal plants which belongs to the family Liliaceae. It is a cactus like plant with short stem and fleshy leaves, and grow in hot and dry areas. Phytochemical compounds such as lignins, saponins, flavonoids, tannins, alkaloids, steroids and anthraquinone had been reported from the extract of *A. vera*. Reports show that it has antifungal, antibacterial, anti-inflammatory, antidiabetic, antiulcer and antioxidant activitities. The plant has been used for the treatment of fever, inflammation, osteoarthritis, asthma, skin diseases, wound healing, diabetes, and stomach ulcers.

One of the aims of the present study was to investigate the antifungal activity of *A. vera* gel against some pathogens. Three extracts that is methanol, n-hexane and gel of *A. vera* were analyzed for the antifungal activity against *Candida albicans* and *Saccharomyces cerevisiae.* To determined antifungal activity agar well diffusion method was used. Gel of *A. vera* showed maximum antifungal activity against *C. albicans* with the zone of inhibition 27 mm at 72 hours. While extracts against *S. cerevisiae* with the zone of inhibition 14 mm at 72 hours showed least antifungal activity. The present study depicted that the gel of *A. vera* has better antifungal activity than methanol extract so it will be more useful in medical treatments.

Second aim was to estimate the antioxidant potential, total phenolic content (TPC) measured by Folin-Ciocaletu reagent. The gel of *A. vera* showed GAE value 12819. Methanol extract showed GAE value 5223. n-hexane showed GAE value 2653. It has reported that the gel showed maximum GAE value against methanolic and n-hexane extract of *A. vera*.

INTRODUCTION

Medicinal plants play an important role in the field of agriculture and are recognized for many purposes especially biological functions and may treated against different types of diseases (Rabe and Vanstaden, 1997). As plants are extremely important for life to provide nourishment and oxygen (Chouhan *et al*., 2016).