Acta Scientific MICROBIOLOGY (ISSN: 2581-3226)

Volume 6 Issue 7 July 2023

Research Article

Microorganisms Emerging as Alternative of Prozac

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DOI: 10.31080/ASMI.2023.06.1265

Received: May 02, 2023

Published: June 07, 2023

Abstract

Prozac is an antidepressant, used to treat major depression, obsessive-compulsive disorder (OSD), and panic disorder. It is also known as fluoxetine, (generic name). Prozac is a selective serotonin reuptake inhibitor (SSRI), adverse effects include an increased risk of suicidal thoughts in some younger people. Other adverse effects are sexual dysfunction, anxiety, nervousness, abnormal dreams, insomnia, dyspepsia, dry mouth, nausea and vasodilatation. To overcome these side effects microorganisms play an important role. Soil microorganisms have same effects as Prozac but have no side effect and potential for chemical dependency. *Mycobacterium vaccae*- effects on neurons in brain and cause cytokine level to rise which leads to the production of serotonin – happy hormone. Many natural, herbal remedies are present for the treatment of depression. In the same queue we can use soil microbes and make ourselves happy and healthier. In this context I have surveyed 25 local gardens for the biodiversity of soil microbes, collected soil samples from 0-15 cm depth and different bacterial and fungal colonies were isolated by serial dilution method. The population of microbes were estimated by plate count method and the diversity of bacterial as well as fungal isolates were recorded. The results of isolation, identification and population of soil microbes from 25 gardens of Bhilai showed around 12 isolates of bacteria and fungi were common in every garden from a total of 37 different colonies were isolated and the final results will be discussed.

Keywords: Prozac; Depression; Brain; Microbes

Introduction

The therapeutic benefits of gardening are: It's a mind relaxing practice; good exercise and very interesting; it allows us to be connected with primary producers of life on a fundamental level. But recent scientific research has helped us to be more specific that soil and cow dung makes us happy. For various anxiety and psychiatric disorders neuroinflammation play a major role [1]. A strain of bacterium in soil, *Mycobacterium vaccae*, has been found to trigger the release of seratonin, which in turn elevates mood and decreases anxiety [2]. Exposure to *Mycobacterium vaccae*, by way of working with cow dung or soil has an antidepressant effect. Seratonin is also thought to play a role in learning and hence exposing children to gardening or fields with grazing cattle is likely to make them sharper, happier [3]. Research areas pursued with regard to *Mycobacterium vaccae* vaccine, include immunotherapy for asthama, cancer depression, leprosy, psoriasis, dermatitis, eczema and tuberculosis [4]. This is inter-related to Panchgavya.

Materials and Methods

Collection of sample

The samples were collected from 25 nearby gardens of Bhilai, 0-15 cm depth, soil profile where most of the microbial activity takes place, and thus where most of the bacterial population is concentrated. Soil samples were collected (approx 100g) in clean, dry and sterile polythene bags using sterilized spatula.

Determination of soil temperature

The thermometer was inserted into the soil up to depth of 5cm and allowed to stay for 10minutes, after which the temperature reading was obtained.

Determination of soil pH

The soil sample is mixed with water, allowed to equilibrate for at least an hour, and then the pH measured.

Isolation of microorganisms

Bacteria

Single separate colonies on the agar plates were selected at random and streaked on the nutrient. Agar plates were incubated for 24 hrs at ± 30°C.

Fungi

1ml of soil suspension was aseptically poured in potato dextrose agar media plates, were prepared for the isolation of fungi. The plates were gently rotated so as to spread the suspension on medium. The plates were incubated at ± 25° C for 4-5 days.

Microbial population count

The population of microbes was determined by serial dilution plate count method, (Thompson, 1989; Ravina., *et al*. 1993).

Soil samples after serial dilution plates were incubated to 48 hrs to grow the microbial colonies properly. Colony forming units (cfu) were counted by using a colony counter. Identification of microbes was done with the help of standard literature.

Results

- **Soil pH and temperature:** pH of garden soil ranged from 6.75-7.9. Temperature of the Soil at the time of collection temperature of soil was recorded in the range of 28°C and 36°C.
- **Isolation of Bacteria:** A total of 37 different colonies were isolated, from all the 25 gardens. 12 isolates of bacteria were common in every garden. *Bacillus, Actinomycetes, and Staphylococcus and Streptococcus, Pseudomonas, Micrococcus, Proteus and Mycobacterium.*
- **Isolation of Fungi:** 07 types of fungi were isolated from garden soil with *Aspergillus* sp to be the dominant the least genera were *Fusarium.*

Discussion

In the present study microbial diversity was systematically analyzed from garden soil of Bhilai to isolate the microorganisms that can be used for the treatment of depression, as substitute of Prozac. We got 12 isolates of bacteria which are common in 25 gardens surveyed, it includes *Mycobacterium* sp. Besides pharmacological intervention, "positive environmental stimuli", which have the advantage of exerting no side-effects, have been shown to modulate inflammation-related markers in human beings. Therefore, we now investigated whether environmental enrichment (EE) would be sufficient to modulate upregulated neuroinflammation in high-anxiety HABs [1]. We can use soil microbes and make ourselves happy and healthier. The benefits of *M. vaccae* are still being looked into and refined, but we do know that they are very helpful in boosting memory and the ability to learn. We've also found over the years that exposing our kids to dirt and germs in a healthy way is important to boost their developing immune systems. Soil microorganisms have same effects as Prozac but have no side effect and potential for chemical dependency. Further investigations are going to come out with large numbers of microorganisms making their way and are actually helpful.

Conclusion

Gardening makes us happy and works as an Anti-Depressant,. Getting our hands into some fresh soil isn't just psychological; it could come down to chemistry, too. Just having these bacteria on your hands from working with soil or even breathing in the fresh air of nature can introduce them to your bloodstream, where they get to work. A walk in the woods or being outside is enough to inhale them. There's some science behind how much going for a walk or simply being outside improves your mood and reduce anxiety. The healthier Soil is, the healthier it is for us. Soil is a living ecosystem that is incredibly complicated and also benefit from the exposure of bacteria and dirt. Try to cut back synthetic fertilizers and other chemicals in favour of some natural solutions, and be rewarded with a healthier garden that rewards us with better mood-boosting bacteria. Microorganisms can be used as Substitute of Prozac after further findings.

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