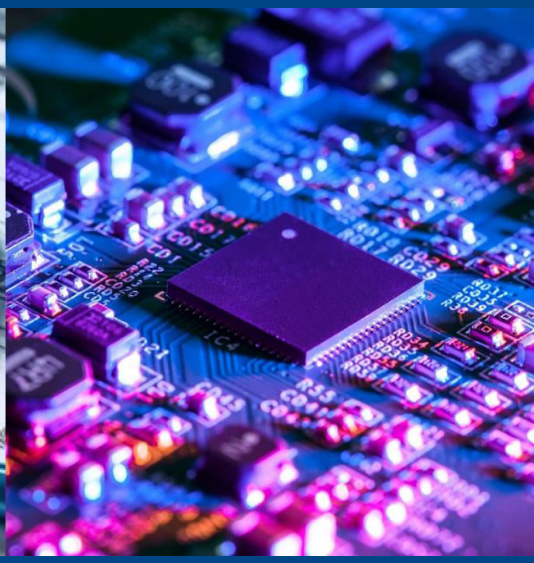
ISSN: 2582-7219





# International Journal of Multidisciplinary Research in Science, Engineering and Technology

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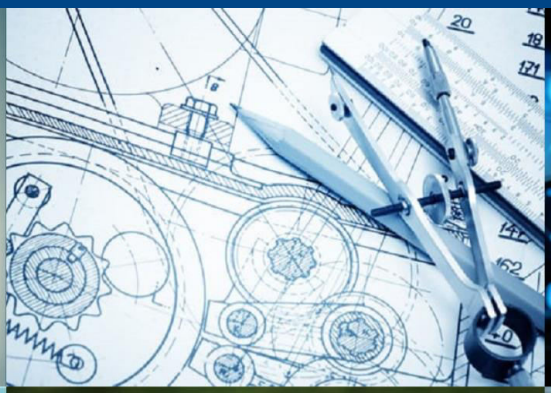

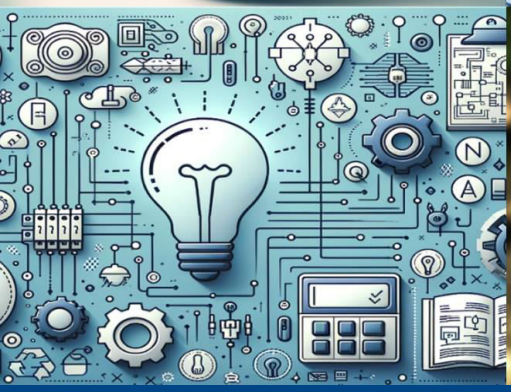

**Impact Factor: 8.206** **Volume 8, Issue 4, April 2025**

© 2025 IJMRSET | Volume 8, Issue 4, April 2025| DOI:10.15680/IJMRSET.2025.0804533

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

# Formulation and Evaluation of herbal syrup for the Treatment of tuberculosis

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**ABSTRACT**: The most common problem suffered by individuals everywhere over many centuries is cough. Coughing is theprotective mechanism of the body. Coughs are classified further accordingly which are depending upon factors such assigns and symptoms, duration, type, character, etc. Most commonly used, prepared and popular dosage form to curecough and cold is syrup. The most preferred dosage form to cure cough is herbal syrup, which is used mostly due to itsbenefits over synthetic syrups. Medicinal plants are used as primary health care agents, mostly in Asian countries.Ingre- dients showing expectorant antitussive activity are used. Hereby cough and herbal treatments associated withcough are studied briefly. The herbal cough syrup is studied which is liquid dosage form, it is easy to administer thansolid dosage form and is more effective and fast acting in order to cure cough. Method of prep- aration of cough syrupswere discussed. The materiaL and quantity used in preparation were listed. Here honey based three batches wereperformed having concentration such as 35%, 40%, 45% w/v. the qua- lity of final syrup was evaluated for postformulation studies.

**KEYWORDS**: Cough, Herbal Syrup, Herbal formulation, Herbal trea- tment. Herbal approach for the treatment and management of tuberculosis

## I. INTRODUCTION

Tuberculosis (TB), also known colloquially as the “white death”, or historically as consumption,[8] is an infectious disease usually caused by Mycobacterium tuberculosis (MTB) bacteria.[1] Tuberculosis generally affects the lungs, but it can also affect other parts of the body.[1] Most infections show no symptoms, in which case it is known as latent tuberculosis.[1] Around 10% of latent infections progress to active disease that, if left untreated, kill about half of those affected.[1] Typical symptoms of active TB are chronic cough with bloodcontaining mucus, fever, night sweats, and weight loss.[1] Infection of other organs can cause a wide range of symptoms.[9]

- Tuberculosis
- Other names
- Phthisis, phthisis pulmonalis, consumption, great white plague
- Chest X-ray of a person with advanced tuberculosis: Infection in both lungs is marked by white arrow-heads, and the formation of a cavity is marked by black arrows.
- Specialty
- Infectious disease, pulmonology

Symptoms

- Chronic cough, fever, cough with bloody mucus, weight loss[1]

Causes

- Mycobacterium tuberculosis[1]

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Risk factors

- Smoking, HIV/AIDS[1]

- Diagnostic method
- CXR, culture, tuberculin skin test, QuantiFERON[1]
- Differential diagnosis
- Pneumonia, histoplasmosis, sarcoidosis, coccidioidomycosis[2]

Prevention

- Screening those at high risk, treatment of those infected, vaccination with bacillus Calmette-Guérin (BCG)[3][4][5]

Treatment

- Antibiotics
- Frequency
- 25% of people (latent TB)[6] 10.6 million (active TB)[7]
- Deaths
- 1.3 million (2022)[6]

Tuberculosis is spread from one person to the next through the air when people who have active TB in their lungs cough, spit, speak, or sneeze.[1][10] People with latent TB do not spread the disease.[1] Active infection occurs more often in people with HIV/AIDS and in those who smoke.[1] Diagnosis of active TB is based on chest X-rays, as well as microscopic examination and culture of bodily fluids.[11]

Diagnosis of latent TB relies on the tuberculin skin test (TST) or blood tests.[11]

Prevention of TB involves screening those at high risk, early detection and treatment of cases, and vaccination with the bacillus Calmette-Guérin (BCG) vaccine.[3][4][5] Those at high risk include household, workplace, and social contacts of people with active TB.[4] Treatment requires the use of multiple antibiotics over a long period of time.[1] Antibiotic resistance is a growing problem, with increasing rates of multiple drug-resistant tuberculosis (MDRTB).[1]

In 2018, one quarter of the world's population was thought to have a latent infection of TB.[6] New infections occur in about 1% of the population each year.[12] In 2022, an estimated 10.6 million people developed active TB, resulting in 1.3 million deaths, making it the second leading cause of death from an infectious

Disease after COVID-19.[7] As of 2018, most TB cases occurred in the regions of South-East Asia (44%), Africa (24%), and the Western Pacific (18%), with more than 50% of cases being diagnosed in seven countries: India (27%), China (9%), Indonesia (8%), the Philippines (6%), Pakistan (6%), Nigeria (4%), and Bangladesh (4%).[13] By 2021, the number of new cases each year was decreasing by around 2% annually.[7][1] About 80% of people in many Asian and African countries test positive, while 5–10% of people in the United States test positive via the tuberculin test.[14] Tuberculosis has been present in humans since ancient times.[15]Causes

- Mycobacteria
- Main article: Mycobacterium tuberculosis
- Scanning electron micrograph of M. Tuberculosis

The main cause of TB is Mycobacterium tuberculosis (MTB), a small, aerobic, nonmotile bacillus.[9] The high lipid content of this pathogen accounts for many of its unique clinical characteristics.[55] It divides every 16 to 20 hours, which is an extremely slow rate compared with other bacteria, which usually divide in less than an hour.[56] Mycobacteria have an outer membrane lipid bilayer.[57] If a Gram stain is performed, MTB either stains very weakly

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"Gram-positive" or does not retain dye as a result of the high lipid and mycolic acid content of its cell wall.[58] MTB can withstand weak disinfectants and survive in a dry state for weeks. In nature, the bacterium can grow only within the cells of a host organism, but M. Tuberculosis can be cultured in the laboratory.[59]

Using histological stains on expectorated samples from phlegm (also called sputum), scientists can identify MTB under a microscope. Since MTB retains certain stains even after being treated with acidic solution, it is classified as an acid-fast bacillus.[14][58] The most common acid-fast staining techniques are the Ziehl– Neelsen stain[60] and the Kinyoun stain, which dye acid-fast bacilli a bright red that stands out against a blue background.[61] Auramine-rhodamine staining[62] and fluorescence microscopy[63] are also used.

The M. Tuberculosis complex (MTBC) includes four other TB-causing mycobacteria: M. Bovis, M. Africanum, M. Canettii, and M. Microti.[64] M. Africanum is not widespread, but it is a significant cause of tuberculosis in parts of

Africa.[65][66] M. Bovis was once a common cause of tuberculosis, but the introduction of pasteurized milk has almost eliminated this as a public health problem in developed countries.[14][67] M. Canettii is rare and seems to be limited to the Horn of Africa, although a few cases have been seen in African emigrants.[68][69] M. Microti is also rare and is seen almost only in immunodeficient people, although its prevalence may be significantly underestimated.[70]

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