# 28th NATIONAL CHEMISTRY CONGRESS ABSTRACT BOOK

AUGUST 15-21, 2016

**MERSIN UNIVERSITY PRESS**
28th NATIONAL CHEMISTRY CONGRESS
ABSTRACT BOOK
AUGUST 15-21, 2016
MERSİN - TURKEY

**MERSIN UNIVERSITY PUBLICATIONS NO: 43**

**EDITTED BY**
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Nermin ŞİMŞEK KUŞ
Göktürk AVŞAR

# 28. ULUSAL KİMYA KONGRESİ

ÖZET KİTABI

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ISBN 978-975690051-2

**ISBN NO: 978-975-6900-51-2**

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# INVESTIGATION OF ANTITUBERCULOSIS ACTIVITY OF SOME 2-SUBSTITUED BENZIMIDAZOL DERIVATIVES WITH AGAR PROPORTION METHOD

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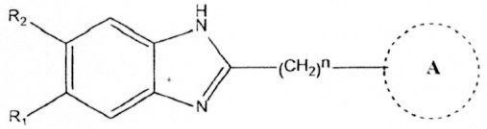
Tuberculosis (TB) is the leading infectious disease characterized by the highest mortality worldwide currently. In TB control, initiation of effective treatment with early and accurate diagnosis to patients and controlling the treatment regularly is necessary[1].

First line anti-TB drugs used in the standard treatment of TB patients are isoniazid, rifampicin, ethambutol and streptomycin. Drug-susceptible TB disease is treated with a standard six month course of four antimicrobial drugs. Standard anti-TB drugs have been used for decades, and resistance to the medicines is widespread. Multidrug-resistant tuberculosis (MDR-TB) is a form of TB caused by bacteria that do not respond to, at least, isoniazid and rifampicin, the two most powerful anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs (e.g., amikacin, capreomycin, ciprofloxacin, ethionamide). However second-line treatment options are limited and recommended medicines may not be always available. In some cases, more severe drug resistance can develop. Extensively drug-resistant TB (XDR-TB) is a form of multi-drug resistant tuberculosis that responds to even fewer available medicines, including the most effective second-line anti-TB drugs. Therefore, failures in the treatment of TB infections are increasing due to the development of increased resistance by usage of existing anti-TB drugs and the increase in the number of patients with immune deficiency[2].

In recent years, there are some benzimidazole compounds which are used in various therapeutic areas for their many effects such as antiulcerative, antihelmintic, antiviral, antihistaminic, antiinflammatory and antioxidant. With performed numerous studies, compounds bearing the benzimidazole ring, antimicrobial and anti-TB activities were determined[2].




$R_1$= -H, -Cl $R_2$=-H, $-CH_3$, -Cl **n**= 1, 2

A= 4-hydoxyphenyl, 4-chlorophenyl, 1-naphtyl, 2-naphtyl

*Figure 1*: Structures of synthesized compounds.

In this study, we aimed to find conventional and microwave synthesis methods for some two substituted benzimidazole derivatives. The compounds in the title were prepared from 1,2-phenylendiamine/substituted 1,2-phenylendiamine and suitable aldehyde or carboxylic acid derivatives by comparative studies with conventional and microwave irradiation methods[3]. Then, we demonstrated *in vitro* anti-TB activity of these synthesized determined by the agar proportion method.

*Acknowledgements:* Financial support was provided by grant from the Research Foundation of Mersin University (2015-AP3-1320).

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**Keywords:** Antituberculosis activity, benzimidazole, tuberculosis, Agar proportion method