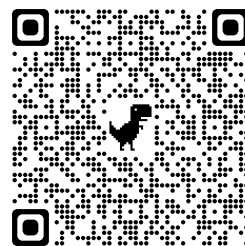


CURRENT RESEARCH TOPICS IN PHARMACY:

Traditional Medicine Talks

May 26th, 2023



FIRST SESSION 11.00 AM-12.45 PM

Moderator:
Mehmet
GÜMÜŞTAŞ

Welcome
Assoc.Prof. Betül OKUYAN

Bioorganic MgO nanoparticles attenuate oxidative stress and upregulate gene expression to attenuate doxorubicin-induced cardiotoxicity
Prof. Atiar Rahman

Phytopharmaceuticals as a protagonist approach for upsurging bioactivity of traditional medicines
Assist.Prof. Monika Dwivedi

Evaluation of *Withania somnifera* (Ashwagandha) in post-traumatic stress disorder induced neurobehavioral and biochemical markers : An experimental study
Dr. Sana Rehman

SECOND SESSION 13:00-14.45 PM

Moderator:
Ceyda EKENTOK
ATICI

HPTLC: A tool for herbal drug discovery
Prof. Abhishek Gupta

Persian Traditional Medicine
Assist. Prof. Laleh Khodaie

Folk medicinal plants of Turkey :
An overview
Assoc. Prof. Gizem Emre

Interactions of traditional and modern medicine in respiratory disorders : An Indian perspective
Prof. Arunabha Ray

THIRD SESSION 15.00-16.15 PM

Moderator:
Esra TATAR

Traditional use of medicinal plants in Albania, past and present
Prof. Vilma Papajani

Voltametric analysis of the antioxidative potential of medicinal plants traditionally used in North Macedonia
Assoc. Prof. Viktorija Maksimova

Biological activities of *Scolymus hispanicus* L.
Assist.Prof. Pervin Rayaman

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INTERACTIONS OF TRADITIONAL AND MODERN MEDICINE IN RESPIRATORY DISORDERS: AN INDIAN PERSPECTIVE

Arunabha RAY ^{1,2*}, **Kavita GULATI**², **Sana REHMAN**¹, **Nafaa Hasan ALI**¹, **Babita KUMARI**²

¹Departments of Pharmacology, Hamdard Institute of Medical Sciences and Research (HIMSR),
Jamia Hamdard, New Delhi, India

²Vallabhbhai Patel Chest Institute, University Of Delhi, Delhi, India.

arunabha14@yahoo.co.in

*Corresponding and presenting author

Traditional systems of medicine have a rich history and are used by nearly 75% of the population of the developing countries. They differ philosophically from contemporary modern medicine in that they propose a holistic approach to therapy, viz. maintenance/restoration of physical, mental and spiritual wellbeing. In India, Yoga and Ayurveda are the oldest forms of traditional therapy and are rapidly emerging as viable alternative treatment strategies for many chronic diseases. In the past two decades there has also been a renewed interest globally in traditional medicine and newer scientific techniques are being used to validate their effects and India has been one of the leaders in this field. Facilitation and promotion of the understanding of these traditional systems are being strongly advocated/encouraged and their complimentary roles to modern medicines are being proposed. As a result, research in traditional medicine is emerging as a leading area for new drug discovery and development and an integrated strategy to explore the scientific basis for their beneficial actions are being undertaken. Interactions between traditional and modern medicines are an emerging concept and validation of effects of traditional therapies by preclinical and clinical research is being employed. Respiratory disorders are among the commonest causes of morbidity and mortality worldwide, and, bronchial asthma is an inflammatory airway disease associated with bronchial hyper-responsiveness and airflow restriction. Current therapeutic strategies for asthma have safety limitations and cost considerations, and alternative approaches are constantly being explored. Traditional medicinal

systems could provide alternative /adjunct therapeutic modes for effective treatment. In line with this, we conducted studies to highlight the significance of interactions between traditional and modern medicine to rationalize drug therapy in bronchial asthma.

In the preclinical study, the effects of traditionally used medicinal plant, *Withania somnifera* (WS, *Ashwagandha*) were evaluated in experimental models of bronchial asthma with an aim to elucidate the cellular and molecular mechanisms and to validate its use in bronchial asthma. In the experimental model of airway inflammation, immunization and challenge with OVA caused a substantial increase in OVA-specific IgE, IL-4, and TNF- α levels, as well as eosinophil counts in blood and BALF, whereas, HDAC-2 levels were reduced. Pretreatment with WS extract (200 and 400 mg/kg, p.o., x 14 days) significantly attenuated OVA-induced eosinophil cell infiltration, IgE, IL-4, and TNF- α levels, as well as raised HDAC-2 levels. In the experimental model of airway remodeling, immunization and chronic exposure of rats to OVA aerosol challenge significantly increased IL-13, 8-OHdG, TGF- β , hydroxyproline, and periostin levels in BALF, lung homogenate, and/or serum as compared to normal controls. There were also marked histopathological changes in the lungs, viz., characteristic of airway remodeling such as accumulation of intra alveolar fluid, goblet cell hyperplasia, increased alveolar septal thickness, sub-epithelial collagen deposition, and severe peribronchial inflammatory cell infiltrate. WS extract substantially down regulated the expression of IL-13, TGF- β , hydroxyproline, and periostin, as well as 8-HOdG, the oxidative DNA damage marker, in the blood and BALF of asthmatic (OVA) rats. Pre-treatment with WS extract also effectively attenuated the histopathological changes and maintained the structural integrity of the airways. The dose of 400 mg/kg was most effective and comparable with that of dexamethasone. In the experimental model of AHR, WS extract reduced the raised *p-enh* values of the in methacholine-challenged OVA-immunized rats, using WBP in conscious and freely mobile rats. Further, WS also lowered BAL fluid levels of TNF-, IL-4, and OVA-specific IgE, as well as decreased IL-10 levels seen in OVA-challenged rats (disease controls). The results were comparable with dexamethasone. In experimental model of acute systemic anaphylaxis, WS pretreatment reduced mast cell degranulation and protection from mortality as compared to the OVA-immunized disease control group, comparable to that seen after dexamethasone treatment. Thus our study showed that *Withania somnifera* (WS) had anti-inflammatory, immunomodulatory, anti-remodeling, anti-oxidant and anti-anaphylactic activity – which could collectively contribute to its therapeutic

benefit in bronchial asthma. WS, by its multi-targeted approach, could thus be considered a potential therapeutic agent and/or an effective adjunct to conventional drug therapy for asthma and other allergic conditions.

In the clinical study, we evaluated the effects of yoga on pulmonary functions and quality of life parameters in patients of bronchial asthma. Yoga is an important way of life which has emerged as alternative form of traditional therapy, particularly for chronic diseases. The patients with clinical diagnosis of mild to moderate bronchial asthma, were recruited for the study and randomized into two groups. In Group I, patients received conventional anti-asthma treatment whereas, in Group II, patients received conventional treatment plus yoga intervention for 50 minutes daily. Pulmonary functions (PFT), Oxidative stress markers, Fractional exhaled nitric oxide (FeNO), and Quality of Life (QOL) were assessed in all patients at baseline and after three months of treatment. Results: The study showed a significant improvement in PFT (FEV1 and FVC) and in QOL parameters as assessed by a Questionnaire developed by McMaster University, Canada, in Group II patients. The level of oxidative (MDA and SOD) and nitrosative (FeNO) markers were also reduced significantly in Group II as compared to Group I. Oxidative stress plays an important role in the etiology of bronchial asthma and the present results showed that yogic intervention improved the antioxidant-prooxidant balance, which could have been responsible for reducing the inflammation in airways and improving pulmonary functions. The results suggested that introducing Yoga as adjunct therapy in bronchial asthma can improve pulmonary functions and quality of life, minimize the need for medication and reduce burden of cost of drugs on patients.

Taken together, such studies have considerable translational significance and highlight the importance of interactions of traditional and modern medicinal concepts for rationalizing drug therapy. Further, such research will also create an ideal platform to bridge the gap between traditional and modern medicine and improve the quality of health care from a global perspective.

Keywords: Indian Traditional Medicine; *Withania somnifera*; Yoga; Bronchial asthma

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