



# INTERNATIONAL JOURNAL OF ADVANCES IN PHARMACY MEDICINE AND BIOALLIED SCIENCES

An International, Multi-Disciplinary, Peer-Reviewed, Open Access, Triannually Published Biomedical Journal  
|www.biomedjournal.com|



## Reverse pharmacological approaches for the innovative leads: Tradition to modern era

### LETTER TO THE EDITOR

The traditional medicine has been a vibrant, innovation-driven and highly successful component of global industry and confluence of spectacular advances in molecular chemistry, cognate fields of spectroscopy, chromatography and crystallography lead to finding of novel leads (Frantz, 2004). Traditional system of medicine utilizes plants as a means of therapy can be traced back only in the form of recorded documents and as fossils records that human had used plants as medicines at least to the middle Paleolithic period, approximately 60,000 years back (Solecki et al., 1975). Although higher medicinal plant species on this planet is estimated at 250,000 (Ayensu et al., 1978) and World Health Organization (WHO) has evaluated approximately 65% of the world's population and incorporated it for their primary modality of health care (Farnsworth et al., 1985). Of these estimated data, only about 6% have been screened for biologic activity, 15% have been evaluated phytochemically (Verpoorte, 2000) and only about 0.75% herbal drugs have studied in clinical trials (Ali, 2009), however remaining still are unexposed. Reverse pharmacology is a highly diversified approach for novel leads which involves the medicinal history, experimental investigation of indigenous medicines and their biological activities based on botany, chemistry that contributed to the discovery of novel platforms (Rivier et al., 1979). The example of discovery of extensively used hypoglycemic drug, metformin obtained by that deliberated effort from *Galega officinalis* (Grover et al., 2002) and still in use to update as frontline for diabetics. More importantly, it is usually impossible to relate one class of phytochemical to specific biological targets, for example alkaloids or flavonoids produce a vast array of biologic effects that are usually not predictable in advance. So worth of herbals used in traditional medicine for various ailments because of their crucial, unmatched, renewable and non-exhaustive foundation of bioactive chemical diversity. So increasing interest in herbal drugs is growing due to their efficiency, low toxicity and absence of side effects. An integrated approach towards the discovery and development of novel entity by reverse pharmacological implications should be incorporated for promotion and development of traditional medicine, which remains a significant hope in the current, target-rich scenario. Hence, innovative goal would be developing the evaluation system of leads based on the analytical results which can be achieved by suitable optimized extraction techniques and equipments like supercritical fluid extraction (SFE), for thermosensitive lead molecules. Validating the methods of extraction using statics (Response Surface Methodology, RSM), isolation of leads by using different chromatographic techniques and characterization of them by spectral data analysis such as GC-MS, LC/NMR, HPLC and NMR contribute the sensitivity in detecting natural compounds from herbal extracts. Now a days, LC-UV- NMR-MS are widely used in genobiotic metabolism studies and related researches for finding compounds having traditional magnitude.

### REFERENCES

- Ayensu ES, DeFilippis RA. Endangered and Threatened Plants of the United States. Washington, DC: Smithsonian Institution, 1978.
- Farnsworth NR, Akerele O, Bingel AS, Soejarto DD, Guo Z. Medicinal plants in therapy. Bull WHO 63, 965-98, 1985.
- Frantz S. Approvals: The demise of the blockbuster? *Nat Rev Drug Discov*, 4, 93-4, 2005.
- Grover JK, Yadav S, Vats V. Medicinal plants of India with antidiabetic potential. *J Ethnopharmacol*. 81, 81-100, 2002.
- Mohammed Ali. Present status of herbal medicines in India. *J Herbal Med Toxicol*. 3, 2, 1-7, 2009.
- Rivier L, Bruhn J. Editorial. *J Ethnopharmacol*. 1, 1979.
- Solecki R. Shanidar IV. A Neanderthal flower burial in northern Iraq. *Science*. 190, 880-881, 1975.
- Verpoorte R. Pharmacognosy in the new millennium: Leadfinding and biotechnology. *J Pharm Pharmacol*, 52, 253-262, 2000.

Mohammad Jameel\*,  
Showkat R Mir.  
*Phytochemistry Research  
Lab, Department of  
Pharmacognosy and  
Phytochemistry, Faculty  
of Pharmacy, Jamia  
Hamdard, New Delhi,  
India- 110062*

\*Corresponding author:  
Email: [ahmadjamil84@gmail.com](mailto:ahmadjamil84@gmail.com)  
Mob/Tel: 0000000000

Biomedjournal © Copyright  
2013, All rights reserved.  
Biomedjournal Privacy Policy.