Research Perspectives on Plant Materials and Their Derivatives Align with the Journal of Phytochemical Insights

About ten percent of all plants on earth are used as medicinal plants. It is estimated that there are between 350,000 and 500,000 species of them (Salmerón-Manzano et al., 2020). The use of medicinal plants has been significantly refined over generations and has become well-known as the basis for many traditional and modern medicines. Now, it is clear to all that parts of plants and plant-derived products are one of the potential reliable sources for modern therapeutics. It is because more than 25% of modern medical drugs are derived from medicinal plants (Islam et al., 2020). Virtually all civilizations around the world have developed medicines based on the plants around them. And it is from this transmitted knowledge that modern medicine and pharmacy have emerged. The hope is that hundreds of superior medicinal plants are now being cultivated worldwide to obtain various substances useful in medicine and pharmacy.

Every plant contains numerous components; among them, many of them have significant biological functions in plants, humans, and other animals (Bhardwaj et al., 2020). In general, these plant-derived components are called bioactive phytochemicals. In this context, every plant is a medical plant, and our planet is a garden for medicinal plants. Bioactive components derived from medicinal plants play pivotal roles for human health (Islam et al., 2021; Rahaman et al., 2023). It is due to each bioactive component may display multiple effects in a biological system; for example, quercetin, a phytopigment that is found in many plants, is a potent antioxidant and anti-inflammatory flavonoid that can prevent tissue injury caused by various drugs (Bappi et al., 2024).

Treatment with medicinal plants or their preparations is for thousands of years. However, the scientific community started to study phytochemicals in the 18th century. Before this time, the therapeutic properties of many plants and their effects on humans and common treatment methods were fairly well known, but the active compounds in the plants were unknown (Faridi et al., 2010). Within two centuries, medicinal scientists discovered many medically important phytomolecules. For example, quinine and artemisinin have been used in malaria for centuries. Modern medicine, especially during the Renaissance, made it possible to actively study medicinal plants through chemical analysis and the use of microscopes, which later played a special role in the synthesis of drugs in the laboratory. These methods have made modern medicine even stronger today (Atanasov et al., 2015). The production of today's pharmaceutical drugs requires many raw materials, which these methods are providing. In the underdeveloped world, where there is no access to modern drugs of synthetic origin, low-cost medicinal plant medicines are also being used directly, which is widely known as 'traditional medicine'.

Modern advancement has led to the development of many new analytical techniques and methodologies that are playing pivotal roles in the discovery of bioactive leads from natural compounds, including medicinal plants. Computational techniques, notably molecular docking and dynamics, quantitative structure-activity relationship (QSAR) modeling, and machine learning strategies, have been recognized as the most promising new tools for advanced phytochemistry research (Kwon et al., 2019).

Identifying bioactive components, evaluating them, and establishing their health benefits are extremely popular approaches of scientific inquiry in pharmaceutical and many other fields, such as botany, biotechnology, biochemistry, medicinal and analytical chemistry, agrotechnology, pharmacology, toxicology, genetics, and so on. Therefore, phytochemical studies have a great impact on bio-allied sciences. Research in this arena covers numerous important topics related to the conception, design, production, and evaluation of drugs and their delivery systems. At present, the screening of medicinal plants (e.g., herbs, shrubs, trees, climbers, and creepers), their parts, and derivatives (extracts, isolated compounds) has gained much attention in several drug discovery programs. Among them, phytochemistry is noticeable. It aims to identify plant bioactive compounds that can be used to develop new treatments and therapies for various minor and major diseases in humans and other animals. However, phytochemical research is also mandatory for understanding plant defense mechanisms and health hazards. Phytochemicals have direct applications in food supplements (nutraceuticals) and cosmetology sciences. These chemicals are one of the major sources for drug and chemical synthesis (Salmerón-Manzano et al., 2020).

Knowing the overall facts and current demands, the Journal of Phytochemical Insights (JPCI) starts its journey to excel in phytochemical research in all aspects. JPCI will cover publishing all kinds of research, opinions, and perspectives in medicinal plants and their derivatives (natural and synthetic), including extraction, isolation, characterization, synthesis, biological and toxicological evaluation (*in vitro*, *ex vivo*, and *in vivo*), and computational studies that are currently available and coming from future advancements. I hope JPCI will be the largest platform for all kinds of researchers, academicians, and relevant non-academicians who are interested in phytochemical research and updates.

Editorial Note

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Conflict of Interest

The author declared that they have no conflict of interest.

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