

Medicinal values of Weeds: A descriptive analysis - Anamika Singh - University of Delhi

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Abstract

Ayurveda is an oldest Indian medicinal system and it was based on uses of plants as medicines. Due to high demand and quick relief is a major reason of development of chemical based medicines, but its having many side effects. Medicinal plants as medicine is accepted worldwide and is always a hot topic of research. In the present study we are trying to explore and explain impotence of weeds. Weeds are naturally grown plants in cultivated felids without any care and are not at all useful. A chemical analysis of these weeds proves that there are many chemical compounds present, are may be useful for treatment of many diseases. Small plants like few species of Parthenium, Amaranthus, Argemone, Tridax, Chrysopogon, hysterothorus, Cynodon, spinosus, Mimosa and Oxalis easily found in our garden and roadside, are having many medicinal value. In the present situation when whole world is suffering with pandemic, natural remedies are the best way to treat many chronic diseases. Weeds was not at all a point of attraction for researchers but Insilico studies can explore the binding affinities of phytochemical of weeds with few important human receptors, and on the basis of this we can conclude that they can have some importance as medicines. Through this article we want to show some specific features of weeds and it may possible that in future we will treat is as important plants and we can remove the tag of unwanted plant.

Most useful plant-derived drugs have been discovered by follow-up of ethnomedicinal information. Weeds, unwanted and uncultivated plants in agro-ecosystems, generally tend to have high content of bioactive secondary compounds. The main objectives of present research were to gather, analyze, and evaluate the ethno-medicinal information on weed species used by the native

people of Jahrom, Iran. All kinds of weeds were repeatedly collected from various agricultural areas through diferent seasons of 2015. Ethnomedicinal information about these weeds was obtained through direct interviews and open discussions with local informants. Based on the results, 36 weed species belonging to 18 families and 31 genera had traditional medicinal uses. Asteraceae was the most dominant family having highest number of weed species followed by Fabaceae, Brassicaceae, and Polygonaceae.

Throughout human history, plants and their products have been important sources for production of various pharmaceuticals. The plant kingdom still holds many plants species containing metabolites with medicinal value. They are yet to be discovered, since only a fraction of living plants has been investigated in the laboratory (Gurib-Fakim 2006). However, the species with probable useful metabolites must be judiciously selected as it is not reasonable to collect and screen all of the plant species on earth for analyzing their metabolites. Selection of plants based on longterm human use (ethno-pharmacology) seems to be the best and a fast approach for discovering plants rich in potential drugs (Farnsworth 1990). In fact, most of the useful plant-derived drugs have been discovered through following up the ethno-medical information (Fabricant and Farnsworth 2001). Weeds are unwanted, non-cultivated, fast-growing, and often herbaceous plants which are successful in disturbed habitats and agro-ecosystems (Zimdahl 2013). Their seeds enter croplands mainly through livestock manure added to the soil for renewal of its fertility (Larney and Blackshaw 2003). Moreover, the established weeds in croplands can disperse their seeds to new areas via various carriers including

wind, irrigation water and farm machineries (Benvenuti 2007). In comparison with crops, weeds often possess greater competitive ability in capturing sunlight, soil water, and nutrients. Since presence of weeds will result in serious reduction in crop yield, farmers frequently apply various chemical herbicides to eliminate them from their farms. Nevertheless, weeds on their own are not useless plants, and some of them may have beneficial impacts on human life (Zimdahl 2013). Some weeds tend to be high in bioactive secondary compounds such as alkaloids, phenols, coumarins, and saponins, all of which are important for a variety of ecological functions such as allelopathy and chemical defense against biotic and abiotic stresses (Stepp 2004; Weston and Duke 2003; Qasem and Foy 2001). These low molecular weight bioactive compounds often have therapeutic effects and thus can serve as the basis for plant-derived pharmaceuticals. For example, aerial parts of *Cyperus rotundus* (one of the world's worst weeds) possess potent antimicrobial, antioxidant, and antigenotoxic properties, which could be due to compounds such as flavonoids and phenols (KilaniJaziri et al. 2011). Also, active ingredients in *Alhagi maurorum*, a noxious weed in cultivated fields, are effective in reducing pain and kidney stones expulsion (Varshochi and Asadollahi 2017). It is worth noting that weeds growing under high irradiation in dry and warm climates synthesize and accumulate much more secondary metabolites. These metabolites prevent cellular damages from various stress-derived free radicals (Selmar and Kleinwachter 2013). The active ingredients of different weeds are often concentrated in certain parts, e.g., leaf, flower, fruit, seed, and/or root. These plant parts are highly valuable and have been frequently recommended by traditional healers for treatment of given ailments. Ethno-medicinal studies have been carried out on flora of Iran but not particularly on weeds in the agro-ecosystems. Therefore, the main objectives of the present study were to gather, analyze, and document the ethno-medicinal information on weed species traditionally

used for therapeutic purposes by the local people of Jahrom, one of the most important cities in terms of agricultural activities in south of Iran.