

## **DESCRIPTION FOR THE GENERAL PUBLIC**

Around the world, plants used in science thousands of years in traditional medicine. However, it was no sufficient information about the therapeutic properties of medicinal plants and everything was based on experience. These plants provide a rich source for screening bioactive compounds using modern assays. In addition, they have traditionally been proven to provide some activity in the treatment of human and animal disease and with modern techniques the bioactive compounds can be isolated and provide new leads in drug discovery. Moreover, plants have been played an important role in maintaining human health, improving the life quality and serving as well as important components of medicines, seasonings, beverages, diet supplements, cosmetics and dyes. Among these plants, lucerne (*medicago sativa* L.), which used as a feed for livestock due to its richness of proteins and vitamins. In addition, alfalfa has been attracted the interest as a folk traditional medicine in the treatment of kidney pain, coughs and other problems, with a variety of anti-oxidant, anti-inflammatory and anti-diabetic properties. Another important plant which used in European from long time as traditionally herbal medicine in heal wounds and in the treatment of urinary tract infections, cystitis and kidney stones is Polish goldenrod (*solidago virgaurea* L.). Recent researches confirm that the variety of biological activities of plant extract is due to their content of phytochemicals like saponins, flavonoids, polyphenolic acids, essential oils and polysaccharides. Beside the various secondary metabolites exist in plants, cyclitols, as sugar alcohol are also distribute into these plants and other living cells and possess several biological properties such as anti-diabetic, antioxidant and anti-cancer.

Extraction of these components is critical step in the analysis of medicinal plants, because it is necessary to extract the desired chemical components from the plant materials for further separation and characterization. The chosen of extraction technique is the first step in bioactive components isolation from plant material. Starting with conventional techniques represented by maceration and Soxhlet extraction, the technological progress attracted the usage of other modern extraction techniques in order to increase efficiency, use as few solvents as possible and save time. With all of this, the extraction efficiency of various bioactive compounds can be affected by different factors, such as extraction techniques, solvents, extraction time, temperature, pressure and others. However, by choosing a suitable extraction technique and an appropriate solvent, a crucial step to ensure an efficient extraction for dedicated target components from plant material is made. The selection of solvent system largely depends on the specific nature of the target compounds. Different solvent systems are available to extract the bioactive compounds from natural products. The extraction of cyclitols compounds uses polar solvents such as water, ethanol or ethyl-acetate.