

# Wild Milk Thistle Unique Fatty Plant

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**Abstract:** Milk thistle *Silybum Marianum L.* annual or biennial wild winter plant belongs to Asteraceae family widespread in north of Iraq particularly in Sulaimaniyah province. The botanical survey revealed that this plant became a third in coverage degree. Plant density reached 4.8 plant / m<sup>2</sup>, replication 40 %, found the higher plant in height was 110 cm. This region is rich in florae vegetation cover which could be invested for anti-desertification, soil protection, sustainable biodiversity development and improvement of natural pastures. Its importance appearance as a medicinally by treating some diseases, milk thistle is better known as having medicinal benefits. It is a great tonic, increases appetite and aids in digestion. Including those who were addicted to alcohol to cleanse the liver. Used internally in the treatment of liver and gall bladder diseases, jaundice, cirrhosis, hepatitis and poisoning (including mushroom poisoning) through its containing several medicinal components as; linoleic acid 64.59%, oleic acid 23.59%, palmitic acid 12.62% and stearic acid 5.9%. Treating components; silymarin 1.5-3% tocopherol and 0.63% sterols. Including Cholesterol, camp sterol, stigma sterol, sit sterol and some mucilage, the three principle components of silymarin are the flavanolignans silybin, silychristin, and silydianin. To plant nutritional importance due to its seeds components for the follows; protein 23%, oils 26.65 %, ash 3.4%, fiber 4.55% and carbohydrates 37.72%. Also the plant contain some important elements such as magnesium, calcium; zinc and iron...etc.. Plant leaves as food eaten peaks cutworms and fresh as it palatable and useful of nutritional value. Contains mucilage substances, vitamins (A, B12, C, E, K) and sugars.

**Keywords:** Milk Thistle, Sulaymaniyah, Medical plant, *Silybum Marianum*.

## 1. Introduction

The research was conducted in Sulaymaniyah Governorate located in north east of Iraq, Latitude and Longitude 35°33'40" and 45°26'14" respectively. The region characterize by fertile soil clay texture and fit environmental conditions, where annual rainfall rate 656.05 mm, rate of annual temperature 19.6 °C, annual rate of humidity 45% and amount rate of annual evaporation 162.7 mm [1]. *Silybum Marianum* (milk thistle) is a genus of two species of thistle. The plants are native to the Mediterranean regions of Europe, North Africa, and the Middle East [2]. One species has been introduced elsewhere, including in North America. To plant several names such as; "Milk thistle" Marian thistle, Mary thistle, St. Mary's thistle, Our Lady's thistle, Holy thistle, Sow thistle, Blessed Virgin thistle, Christ's crown, Venue thistle, Heal thistle, Variegated Thistle, Wild Artichoke and scientific names as *Carduus Marianus*, *Silybum marianum*, derives from a feature of the leaves, which are prominently banded with splashes of white. Historically, these milky bands were said to be Mother Mary's milk, and this is the origin of another common name, St. Mary's thistle. The most widespread species is *Silybum marianum*. When processed into an ethanolic extract and sold as Milk Thistle Extract the composition; 65-80% Silymarin' concentrated from 1.5-3% of the plant at 25-30% Fatty acids (Linoleic at 60%, Oleic at 30%, and Palmitic at 9%) [3- 5]. Many of research show the active flavanolignans (flavanolignan) group of constituents, called silymarin, contained only in the seed shell has liver-protective and regenerative properties, as well as antioxidant effects. The liver-protective effects were known and written about in ancient times, leading to the active chemical, pharmacological. Clinical use for a variety of liver ailments, such as hepatitis, has also prospered throughout many parts of the world. Members of this genus grow as annual or biennial plants according to environmental factors. The erect stem is tall, branched and furrowed but not spiny. The large, alternate leaves are

waxy-lobed, toothed and thorny, as in other genera of thistle. The lower leaves are cauline (attached to the stem without petiole). The upper leaves have a clasping base. They have large, disc-shaped pink-to-purple, rarely white, solitary flower heads at the end of the stem. The flowers consist of tubular florets. The phyllaries under the flowers occur in many rows, with the outer row with spine-tipped lobes and apical spines. The fruit is a black achene with a white pappus. *Silybum eburneum* Coss. & Dur., known as the silver milk thistle, elephant thistle, or ivory thistle - Algeria, Morocco, Tunisia, Spain, *Silybum eburneum* Coss. & Dur. Var. *Hispanicum* *Silybum marianum* (L.) Gartner, the blessed milk thistle, which has a large number of other common names, such as variegated thistle [6-9]. Wide spread across much of Europe, Asia, and North Africa from Norway and the Canary Islands to China and Maluku; naturalized in Australia, New Zealand, and the Americas [6-10]. For over 2,000 years, people around the world have enjoyed milk thistle in their diet. Just about all parts of the plant have been used as food with no reports of toxicity [11-15]. Although it can be used as food, milk thistle is better known as having medicinal benefits. It is a great tonic, increases appetite and aids in digestion. It is used by many people, including those who were addicted to alcohol to cleanse the liver. Milk thistle is used internally in the treatment of liver and gall bladder diseases, jaundice, cirrhosis, hepatitis and poisoning (including mushroom poisoning) [16-20]. Milk thistle is a stout, biennial or annual plant that grows up to one meter tall and has a branched, stem. This wild edible takes two years to complete the growing cycle. It is best known as having a unique shaped flower and leaves that are somewhat prickly to the touch if not careful. Each milk thistle flower can produce almost 200 seeds, with an average of 6,350 seeds per plant per year. Milk thistle flower heads average between 4 and 12 cm. long, wide, and are light purple in colour. The leaves of the milk thistle are oblong to lanceolate in shape. They are either lobate or pinnate, with spiny edges. Leaves are hairless, are alternate, and have milky-white veins. The upper leaves clasp the stem. Milk thistle grows up to one meter tall.

Habitat of Milk thistle grows in dry, rocky soils, preferring sunny or lightly shaded areas. It also likes waste places in many areas around the world. The young stalks, leaves, roots and flowers can be eaten. Milk thistle root can be eaten raw or cooked. Leaves can be eaten raw or cooked however the very sharp leaf-spines must be removed first. When cooked these leaves make a great spinach substitute. Flower buds can be cooked [21-26]. The stems can be eaten raw or cooked for its sweat favorite. They are best when peeled and soaking is recommended to reduce the bitterness. Milk thistle can be used like asparagus or rhubarb or added to salads. They are at their best when used in spring when they are young. Roasted milk thistle seeds can be used as coffee Flower heads are reddish-purple with bracts ending in sharp spines. The small hard fruits in the flowers, known technically as achene, resemble seeds and are the part of the plant used medicinally [27-31].

## 2. Materials and Methods

This study was conducted in Sulaymaniyah region in spring of 2015/2016 that made a survey for area in randomized method by wooden square in 50x50 dimensions, which the lands contain the spread of the plant So being counting the number of plant, coverage%, replication, botanical description and vegetative growth characters in addition of studying a quality properties, chemical, nutritional composition and medicinal importance of plant .

## 3. Discussion and Results

Milk thistle *Silybum Marianum* L. annual or biennial winter plant belongs to *Asteraceae* family widespread in north of Iraq particularly in Sulaimaniyah province. The botanical survey revealed that this plant became a third in coverage degree. Plant density reached 4.5 plant/m<sup>2</sup>, replication was 40 %, found the higher height plant in flora region 112 cm. Each milk thistle flower can produce 250 seeds, with an average of 6, 500 seeds per plant per year. Milk thistle flower heads average between 4 and 12 cm. long and wide, and are light purple in colour. The leaves of the milk thistle are oblong in shape. They are either pinnate, with spiny edges. Leaves are hairless, are alternate, and have milky-white veins. The upper leaves clasp the stem. Habitat of Milk thistle grows in dry, rocky soils, preferring sunny or lightly shaded areas. It also likes waste places in many areas around the world .The Marian, or Milk Thistle, is perhaps the most important medicinally among the members of this genus, however, assign it, naming it *Silybum Marianum*. Food uses of Milk Thistle; the Milk Thistle seeds have recently been used in preparation of biscuits, cake, and pizza. Up to 3% of the wheat flour replaced with test material. The resulting dough was more uniform, smoother and less sticky. The finished baked products have improved nutritional quality, crust color, texture, and symmetry and stayed fresh longer than control. Nutritional composition of Milk Thistle seeds, the seeds of plant have been evaluated for its oil, protein, fiber and mineral contents. The proximately composition of Milk Thistle seeds presented at table [4]. Minerals and Nutrients; the role of trace elements in human nutrition and disease cannot be overemphasized. Even though the mineral elements form a small portion of total composition of most

plant materials and of total body weight and they do not contribute to energy value of food, but they are of great physiological importance particularly in body metabolism .The results indicates that the seeds of test plant contains Mg 2, 225ppm, Ca 778.5ppm, Cu 108.3ppm, Fe 74.3ppm, Zn 69.4ppm, Pb 44.3ppm, Ni 35.5, Mn 23.5ppm, Cr 6.8ppm and the Cd 3.2ppm showed the lowest concentration. It can be deduced that the seeds of Milk Thistle if consumed, could be a good source of minerals. Presences of rich amount of calcium and Magnesium are a special feature. Milk Thistle Protein, the defatted seeds contain an excellent quality and quantity of protein, ranging 23 %. The qualitative analysis of protein hydrolyzes revealed ten amino acids. Among these Aspartic acid, Glutamic acid, Glycine, and cystin were the major amino acids. Therefore the Milk Thistle meal as by product after its crush for oil could be used as a high protein animal and poultry feed. The unique composition of amino acids and important nutritional minerals make it rich feed. Milk Thistle oil, the seeds contain 26.65% fixed oil. The composition of the seed oil revealed that linoleic acid 64.59%, oleic acid 23.59%, palmitic acid 12.62% and stearic acid 5.9% are the predominant fatty acids. Milk thistle oil is fairly high in polyunsaturated fatty acids particularly an essential fatty acid i.e., linoleic acid (Omega-3), which is believed to be helpful in lowering cholesterol, when induced in the diet .Medicinal uses of milk thistle, the seeds, fruit and leaves of Milk Thistle have been used since the Roman times as a liver tonic, excellent food for cattle and horses. The standardized extract "Silymarin" is used in supportive therapy of liver disorder like stimulates protein synthesis in hepatic cells, improves disturbed hepatic functions. It contains mixture of flavonoids which contribute greatly to dietary sources of antioxidants and their intakes decreased the risk of coronary heart diseases and increases immunity to infectious cells and inhibit the growth of tumors. Consider the plant a good host for some insects as; aphids, ants, butterflies, ladybirds, mittens, this helps for natural balance between organisms to achieve the harmonies status in its native.

Table 1: Chemical composition of Milk thistle seeds

Constituent	Amount %	Fatty acids types	Amount%
Crude Moisture	4.48	Linoleic	64.06
Protein	23.0	Oleic	23.59
Oil	26.23	Palmitic	12.62
Ash	3.4	Stearic	5.9
Fiber	4.55		
Carbohydrates	37.72		

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