**A brief review on the effect of *Silybum marianum* on different cancers**

Pardis Tabibian 1 Navid Shahnam1 Mohamad Reza Ganjalikhany\*2

1-Bachelor student of Cellular and Molecular Biology, Department of cellular and molecular biology and microbiology, Faculty of Biological Science and Technology, University of Isfahan, Isfahan, Iran

2- Department of Cell and Molecular Biology & Microbiology, Faculty of Biological Science and Technology, University of Isfahan, Isfahan, Iran

m.ganjalikhany@sci.ui.ac.ir

**‌ Statement of Problem:** More than 8 million people die from cancer each year, making it the second most common cause of death in the world. Chemotherapy, radiation therapy, and surgery are frequently used in cancer treatment. Although these treatments have the potential to kill cancer cells and stop the disease from spreading, they can also have a number of negative side effects. For ages, people have been using the plant species *Silybum marianum*, also referred to as milk thistle, for therapeutic purposes. The health advantages of milk thistle are well recognized, especially for liver function, but there is now some evidence that it may have anti-cancer effect, especially in its active component.  
**Research Purpose**: This brief review aims to examine the most recent studies on *Silybum marianum* and its potential effect on cancer treatment, enhancing the effectiveness of some conventional treatments, reducing their side effects and improving quality of life in patients.

**Research Method:** A literature review was conducted to identify relevant studies on *Silybum marianum* effects on cancer treatment. For articles published during the previous ten years, searches were carried out using PubMed, Science Direct, and Google Scholar. Search terms that were used include “*Silybum marianum*,” “cancer,” “cancer treatment,” “neoplasm,” “Silymarine,” and “anti-cancer effect”

**Results and Conclusion:** *Silybum marianum*, popularly known as milk thistle, is a plant that has been utilized for its therapeutic benefits for many years. Some potential health benefits of Silybum marianum are liver health, lowering cholesterol levels in the blood, improving insulin sensitivity and reducing blood sugar levels in people with type 2 diabetes, enhancing skin health and cancer. Silymarin, a flavonoid known to have antioxidant and anti-inflammatory properties, is the active component of milk thistle. Silymarin has been found to have anti-cancer properties in various types of cancer. Recent research has demonstrated that silymarin inhibits the growth of cancer cells, promotes cancer cell death, and reduces the side effect of chemotherapy and radiation therapy. Studies have examined how silymarin affects several types of cancer, including the liver, breast, prostate, pancreas, colorectal, melanoma, lung, ovarian, and bladder. For example, it inhibits pancreatic cancer cell proliferation and migration through downregulating PLK1 expression. According to another study silymarin inhibits the progression of ovarian cancer cells by regulating long non-coding RNA H19. It also has a negative effect on the growth of human liver cancer cells via suppression of mitochondrial biogenesis and cell cycle arrest. Other evidence suggests a prevention of cell proliferation and migration in bladder cancer by regulating miR-182-5p. To fully comprehend the efficacy and safety of employing Silybum marianum in the treatment of cancer, more research is still required. It is important to understand, before adopting any natural cancer treatments, it's crucial to speak with a medical professional.

**Keywords:** *Silybum marianum*, cancer, neoplasm, milk thistle, Silymarine.