

# Nutraceuticals and Skin Cancer: Exploring Potential Preventive and Adjunctive Strategies

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**Introduction & Objectives:** A nutraceutical is any food-derived supplement that has a medical benefit in preventing illness and promoting health. Unhealthy life style is associated with increased risk of non-communicable diseases. Current treatment options such as chemotherapy, radiotherapy and surgery, induce unwanted side effects, compromising patient's quality of life. Therefore, there has been an increased global interest in the use of dietary supplements and traditional herbal medicines for treatment of cancer. Nutraceuticals can be classified by several criteria: by food source, mechanism of action, chemical nature and specific benefit for health. This review aims to explore the relationship between nutraceuticals and skin cancer, highlighting potential preventive strategies and their adjunctive role in conventional treatment approaches.

**Materials & Methods:** A PubMed search was performed using the common and scientific names of frequently advertised nutraceuticals along with the terms “non-melanoma skin cancer,” or “basal cell carcinoma” or “squamous cell carcinoma,” or “melanoma.”

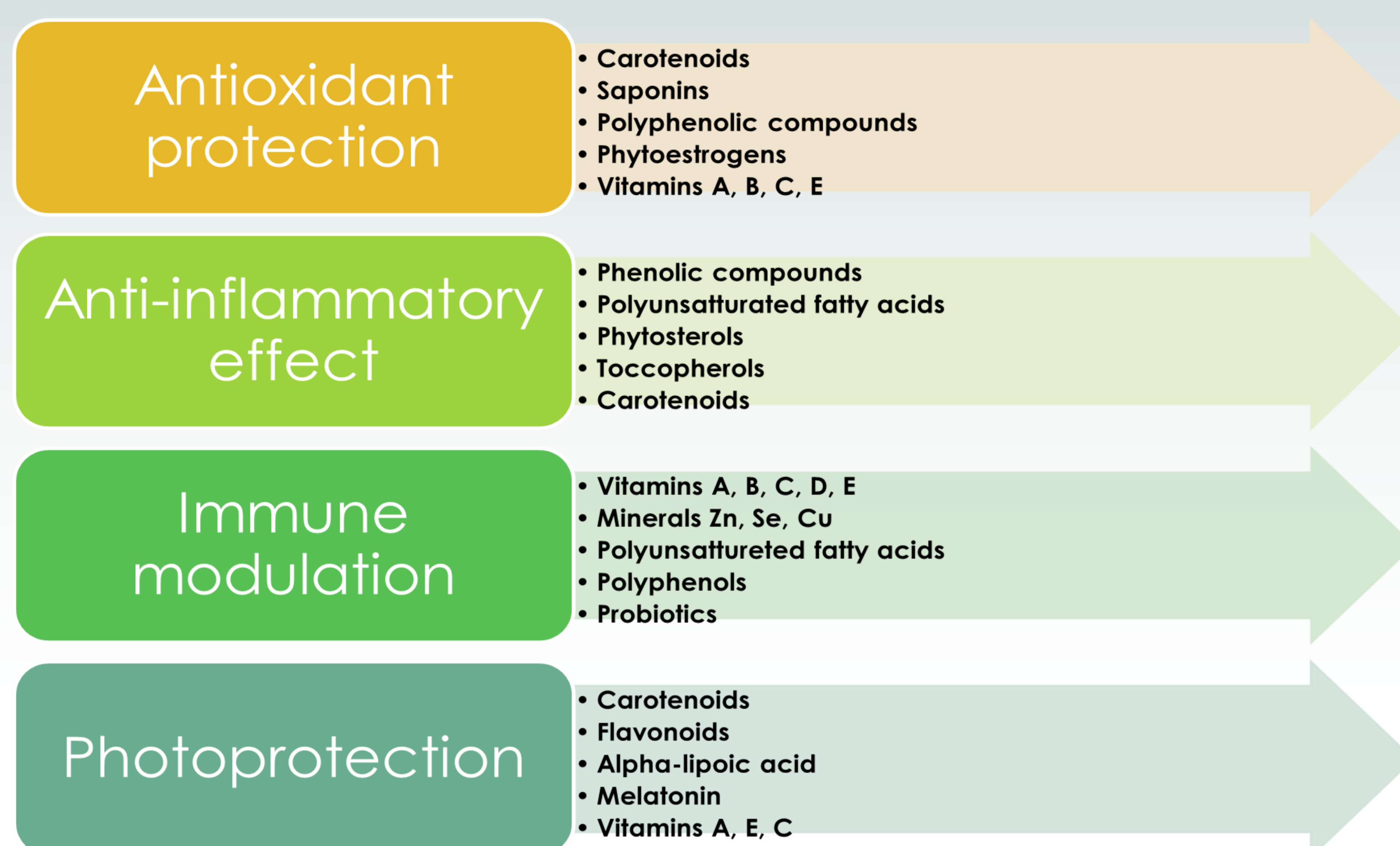


Fig 1. Nutraceuticals with different mechanism of action

**Results:** The rates of skin cancer are continuously rising, and the estimated health care costs are mounting, which increases the need of promotion of healthy lifestyle, and scientific focusing on the role of diet and nutrition in cancer prevention. Cancer has a multifactorial etiology with causes found in genetic mutations, infection/inflammation, poor eating habits, exposure to radiation, work stress, and/or intake of toxins. UV radiation is typified as a "complete carcinogen" because it is both a mutagen and a non-specific damaging agent. UV is connected to the three most common types of skin cancer, basal cell carcinoma, squamous cell carcinoma and melanoma. UV promotes formation of photodimers in the genome and causes mutations by generating reactive oxygen species (ROS). It is becoming increasingly evident that ROS play an important role in carcinogenesis by malignant transformation of cells and perpetuating other steps of carcinoma development and spreading. Food sources used as nutraceuticals can be categorised as: dietary fibre, prebiotics, probiotics, polyunsaturated fatty acids, minerals, amino acids and peptides, carotenoids, vitamins, phytochemicals and spices. The need for alternative and less toxic therapies for skin carcinoma is clear. The role of nutraceuticals in skin cancer is: antioxidant protection, photoprotection, anti-inflammatory effect and immune modulation (fig 1.).

**Conclusion:** Nutraceuticals present an intriguing topic in skin cancer prevention and management. Their potential as adjunctive therapies and their ability to provide antioxidant protection, photoprotection, anti-inflammatory effects and immune modulation warrant further investigation. While the field of nutraceuticals and skin cancer is promising, a comprehensive approach that combines sun protection measures, conventional treatments, and evidence-based nutraceutical interventions is crucial for optimal skin health and cancer prevention.

## References

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