

2nd International Conference on **CANCER BIOLOGY AND THERAPEUTICS**

June 17, 2024 | Rome, Italy

A combinatory nanoformulation approach for augmenting the therapeutic impact of phytoconstituents**Gurpreet Kaur Narde***National University of Science and Technology, Oman*

Phytoconstituents have an immense potential to restore cellular health for various ailments, including deadly disorders such as colon cancer. Resveratrol (Resv), a bioactive phytoconstituent found in grapes, has been reported to have therapeutic properties against colon cancer cell lines. Acetyl-11-keto- β -boswellic acid (AKBA) is a triterpenoid isolated from *Boswellia sacra*, a plant native to Oman, reported to have potent anti-cancer and anti-inflammatory abilities. Quercetin (Quer), abundant in vegetables and onions, has many therapeutic properties and is a reputable bioenhancer. The limitation of employing Resv, AKBA, and Quer in therapeutic form is their low absorption and low bioavailability due to fast metabolic clearance. The aim of the study is to overcome the limitation of low bioavailability of Resv, AKBA, and Quer. Nanocarriers have a high level of biocompatibility, biodegradability, and biological stability. The three phytoconstituents were encapsulated in nanoformulation using lecithin and span 80 by solvent injection method to spiral their bioavailability. Nanoformulation encapsulating Resv, AKBA, and Quer (3X) had a particle size of 198 nm, and the UV analysis showed an entrapment efficiency of 90%. FTIR also confirmed the entrapment of the 3X drug in the formulation. 3X formulation release was studied ex vivo using intestinal membrane in Franz diffusion cell, and a sustained release of 60% AKBA, 40% Resv, and 50% Quer was reported by 48 hours. A nano-sized formulation with good entrapment efficiency and sustained release characteristics was successfully prepared. A novel approach to combine the anti-cancer, anti-inflammatory, and bioenhancer capabilities of 3X in the nano-sized formulation was successful, and it can be further explored in colon cancer treatment. The nanoformulation can also possibly provide a synergistic approach to cancer treatment. Nano-based drug delivery systems are an excellent approach in improving therapeutic specificity, making it easier for the body to absorb it reducing the drug's breakdown and systemic toxicity.

Biography

Gurpreet Kaur Narde was studying in College of Pharmacy, National University of Science and Technology in Oman..