

Carotenoids: The bioactive phytochemicals with diverse roles in phytomedicine

Ravendra P.S. Chauhan, Charu Gupta and Dhan Prakash

Amity Institute for Herbal Research and Studies, Amity University, India

Among the bioactive phytochemicals, carotenoids have been the most studied from various aspects. Carotenoids, the basic source of yellow, orange, and red plant pigments, are widely distributed in nature. Carotenoids are ubiquitous compounds playing a role in a range of special processes. Thus, they are regarded as essential compounds for life mainly due to their various roles. Recently, various genes involved in carotenoid biosynthesis of several bacterial organisms have been identified, which offers new opportunities for the genetic engineering of carotenoid synthesis in vivo. Carotenoids are present in all living organisms, from bacteria and algae to higher plants, in both non-photosynthetic and photosynthetic tissues and are present in most commonly consumed vegetables and fruits. The most-studied carotenoids are α -carotene, β -carotene, lycopene, lutein, zeaxanthin, and cryptoxanthin. The group of carotenoids consist more than 700 phytochemicals, which constitute photosynthetic membranes and produce colors in plants and animals. Out of 700 pigments, only about twenty-four commonly occur in human foodstuffs. The principal carotenoids of foods are β -carotene, β -cryptoxanthin, lycopene, lutein and violaxanthin. Except for violaxanthin, there are also the principal carotenoids found in the human plasma and together with zeaxanthin, are the carotenoids most studied in terms of human health. Carotenoid pigments, which are abundant in many fruits and vegetables, have been studied for their diverse roles in phytomedicine.

Biography

Ravendra P.S. Chauhan holds a Master of Science in Biotechnology from Amity University, UP, India. He has been working in the area of herbal research at Amity University since December 2011. He has published one article in peer reviewed international journal and several abstracts in reputed international conferences. He has presented several posters in various national and international conferences and symposia.

chauhanrps@hotmail.com