

Blakeslea Trispora

Carotenoids – in particular beta-carotene and lycopene – represent the most widespread group of naturally occurring pigments.

They are present without exception in photosynthetic tissue and occur with no definite pattern in non-photosynthetic tissues such as roots, flower petals, seeds, fruits, vegetables and Protista, including fungi.¹

Different functions of carotenoids have been recognized in nature: light harvesting, photoprotection, singlet oxygen trapping, excess energy dissipation and structure stabilization.

The fungus *Blakeslea trispora* lives in commensalism (a sort of symbiotic relationship) with tropical plants; some strains in nature are big producers of beta-carotene and other carotenoids.



Blakeslea trispora is a phycomycete of the order Mucorales, existing as (+) or (-) type. The (+) strain synthesizes trisporic acid, a precursor of beta-carotene and lycopene. By growing the two types in a specific ratio, the (-) strain spontaneously synthesizes large amounts of these two carotenoids.

The biosynthetic pathway is identical in vegetable plants and Blakeslea trispora.

The fungus Blakeslea trispora has been improved through classical strain selection to improve its productivity and is classified as GMO-free. It has also been shown to be non-pathogenic and non-toxic. It has been considered adequate for the production of beta-carotene by the Scientific Committee on Food.²

Blakeslea trispora is grown in large-scale fermentors using food-grade raw materials.

Beta-carotene and lycopene are isolated from the fungal biomass by solvent extraction and crystallized with very high purity.



¹ Simpson, K.L. and Chichester, C.O., *Ann. Rev. Nutr.*, 1981 1:351-374

² *Opinion of the Scientific Committee of Food on Beta-carotene from Blakeslea trispora*, Adopted on 22 June 2000 and corrected on 7 September 2000.

