Selective extraction of free- astaxanthin from the red encysted *Haematococcus pluvialis*

강창덕, 박태현, 심상준[1,*]
서울대학교; [1]성균관대학교
(simsj@skku.edu*)

The carotenoid pigment astaxanthin (3,3'-dihydroxy-β,β-carotene-4,4'-dione) from the green alga *Haematococcus pluvialis* has been gaining increasing attention in recent years because of its strong antioxidant properties. Astaxanthin accumulates inside cell bodies of *H. pluvialis* during the transformation of green vegetative cells to red cyst cells under unfavorable environments. The astaxanthin pool of encysted *Haematococcus* is approximately 70% monoesters, 25% diesters and 5% free. Free- astaxanthin is preferable to astaxanthin esters in terms of the utilization by animals. Moreover, mature red cysts form a thick amorphous layer of secondary wall inside the extracellular matrix (primary wall), followed by the limitation of bio-availability of astaxanthinin in animals and humans. Therefore, there is a need to develop a novel process for maximizing the production of free- astaxanthin. In this study, free- astaxanthin from cyst cells of *H. pluvialis* was selectively extracted by a two phase solvent system using alkane and alcohol, resulted in a recovery yield of free- astaxanthin over 96%.