ABSTRACT Deltamethrin ((S)-alpha-cyano-3-phenoxybenzyl (1R,3R)-3-(2,2-dibromovinyl)-2,2-dimethyl-cyclopropanecarboxylate) is one of the important pyrethroids pesticides that are widely used for crop protection and to increase harvest productivity and has become very popular with pest control operators. The synthetic pyrethroid deltamethrin is a potent insecticide that kills insects through dermal contact and digestion against a wide range of pests. As pyrethroids are widely used as insecticides, they are present in the environment in considerable amounts. However, to date, no information has been available in the literature on plant physiological (chlorophyll-a and -b, carotenoids) responses to deltamethrin stress. Therefore, we investigated growth responses of maize seedlings grown with various levels of deltamethrin in the present study. Treatment concentrations were prepared using control (distilled water) and 0.01, 0.05, 0.1 and 0.5 of original insecticide solution and seeds were pre-treated for 72 throughout hours. Seeds of maize were sown in petri dishes with 10 ml of the distilled water for 7 days. At the end of the 7th day, the seedlings of each application were placed in 4-L pots with perlite containing of Hoagland’s nutrient solution. Plants were cultivated in a climate chamber with controlled conditions (photoperiod 12-h, temperature 25±2°C, relative humidity 60±5%, light intensity 160 μmol/m-2/s-1) for 45 days. Chlorophyll a-b, total chlorophyll and carotenoid content are determined by Sims and Gamon (2002) method. The contents of chlorophyll-a and -b, total chlorophyll and carotenoid in maize leaf decreased relatively with deltamethrin treatments according to the control group. The highest decreasing of chlorophyll-a and total chlorophyll content was observed in 0.5 ppm treatment while 0.01 ppm for chlorophyll-b. In addition carotenoid content was significantly decreased at 0.01 ppm deltamethrin treatment. In the present study higher concentrations of deltamethrin were found more toxic than lesser concentrations for chlorophyll-a and total chlorophyll parameters while variable for chlorophyll-b and carotenoid parameters. Keywords: Chlorophyll, Carotenoid, Deltamethrin, Maize, Pesticide