The inhibitory effect of grape seed powder (GSP) on lipid oxidation in chicken nuggets during frozen storage for 5 months was investigated. Chicken nuggets were prepared by dipping into batter containing GSP and pre-fried at 180 °C and then stored at −18 °C. Prefried chicken nugget crusts showed antioxidant properties. Primary oxidation products, determined by the peroxide value (POV) and conjugated diene (CD) concentration, gradually increased until month 2 and then declined, which is an indication of secondary lipid oxidation. Thiobarbituric acid reactive substance (TBARS) values slowly increased during the first 2 months of storage and then slightly decreased. However, at the end of the storage period, the levels were increased to 0.4 mg MDA/kg meat and were lowest in 10 % GSP (0.104 mg MDA/kg meat). The para-anisidine values (pAV) increased in all samples during storage. Generally, samples treated with GSP had lower POV, pAV, TBARS, and CD values compared to the control. These findings indicated that GSP significantly (p<0.05) retarded lipid oxidation in precooked chicken nuggets.