Salinity is one of the most important abiotic environmental factors for aquatic organisms; by surging, coastal run-off, and rains and may have different durations and ranges.The accumulation or decrease of carbohydrates is associated with maintaining intracellular homeostasis, protecting against salinity-induced oxidative stress and limited adaptation ability.As a matter of fact, increases in external concentrations of inorganic ions impairs the osmotic balance between the cell and their surrounding medium and forces water efflux (ex-osmosis) from the cells, leading to the loss of turgor pressure (Frick and Peters, 2002); in this respect, plants, including species of chlorophyta, response to high concentrations of salt by assimilation metabolites like those of fructose, sucrose and trehalose, which possess an osmolyte function, or those of charged molecules, such as proline and glycine betaine in order to read just osmotic equilibrium by preventing water loss (Banu et al.,2009; Ahmad et al.,2013).Research by Mi et al. (2018) This accumulate carbohydrates under saline conditions, serving as osmotic regulator and adaptive mechanism, respectively, while Ulva lactuca decreases its carbohydrate content as it struggles to adapt to hyper-saline conditions Research by Burtin et al. (2003).The adaptation to extreme salinity involves short-term and long-term responses in Dunaliella sp., the former include osmotic adjustment by accumulation of large amounts of intercellular glycerol and efficient elimination of Na+ by plasma membrane transporters.Rapid alterations in the cell volume donated by lacking a rigid cell wall in this genus makes it possible to respond to changes in salt concentration by intercellular ions and glycerol concentration adjustments (Kacka and Donmez, 2008).Among algal species, the unicellular green algae; Dunaliella salina, due to its remarkable ability to adapt to highly saline conditions, could act as a valuable model for the identification of such mechanisms (Chen and Jiang, 2009).Exceptionally salt tolerant (halotolerant) organisms could enrich our knowledge in knowing basic physiological mechanisms that may lead to enhance salinity tolerance in crop.and Enteromorpha prolifera accumulated significantly higher levels of fructose, glucose, sucrose, and trehalose in response to salinity stress (up to 35 ppt).Algae are inhabitants of biotopes characterized by varying salinities, and as a result, they have attracted considerable attention in salt tolerance studies domain.The increase in salt concentration affects the rate of respiration, distribution of minerals, ion toxicity, photosynthetic rate and permeability of the cell membranes (Sudhir, 2004).Up to now, however, the influence of this factor on algae has been studied using only several species (Dzhafarova, 1992; Fujii et al., 1995; Fu et al., 2003; Radchenko et al., 2006).Additionally, it is predicted that Ulva lactuca will show the greatest decrease in carbohydrate content as it is known to be highly susceptible to salinity stress.Salinity changes may alter carbohydrate content in green algae, depending on the species and duration and magnitude of the stress.Enteromorpha intestinalis accumulate higher levels of carbohydrates under high salinity levels (up to 40 ppt) when exposed for 72 hours or longer (Ebrahimi et al., 2017).The algae adapt themselves to stress by undergoing changes in morphological and developmental pattern as well as physiological and biochemical processes.Observations of algal cultures exposed to different water salinities give some insight into the mechanisms of survival and adaptation in algae.The Red Sea is a unique marine ecosystem that is characterized by high temperatures, high evaporation rates, and high salinity levels.They have served as model organisms for better understanding of salt acclimation in more complex physiological processes of higher plants (Alkayal et al., 2011).The main objective of this study was to investigate the effects of various salinity conditions on the growth and the content of some metabolites including , carbohydrates.This is based on previous research that has shown that high salinity environments can be stressful for algae and result in reduced photosynthesis and growth.As carbohydrate content is directly linked to photosynthetic activity, a decrease in photosynthesis should result in a decrease in carbohydrates.These extreme salinity conditions can have a significant impact on the physiology and biochemistry of green algae, including their carbohydrate metabolism.The Red Sea's extreme salinity affects the physiology and biochemistry of green algae, including their carbohydrate metabolism.This organism can practically adapt to the entire range of salinities, well above the maximal salinity range for growth of most plant species.For example, seawater salinity in coastal habitat may drop, especially during summer typhoons, to 2?It is hypothesized that a change in salinity will have an effect on the carbohydrate content of the green algae.Specifically, an increase in salinity will result in a decrease in carbohydrate content for all three species.The central part of the Red Sea is known to have some of the highest salinity levels globally, ranging from 38 to 42 ppt.and remain at this level from several hours to three days (Luchin et al., 2005).