

Chapter one

1.1 Electrolytes

Electrolytes are minerals that can be found in blood and other body fluids which are known to have a role in carrying electrical charge, affecting body acid-base balance, muscle functions, metabolism, cellular functions including enzyme activities and electrical gradients and other essential processes (Lobo, 2004; Buckley *et al.*, 2010; Kaplan and Kellum, 2010 and Johnson, 2012).

The pool of electrolytes in human body is mainly consisted of sodium (Na^+), potassium (K^+), calcium (Ca^{2+}) and magnesium (Mg^{2+}) (Kraft *et al.*, 2005; Buckley *et al.*, 2010).

Electrolytes irregularities can cause major complications, the severity of these complications correlates with the scale of the disorder and the time frame in which the disorder occurred. (Kraft *et al.*, 2005; Buckley *et al.*, 2010 ; Kaplan & Kellum, 2010 and Johnson, 2012).

1.1.1 Sodium

Knowing that sodium is the most abundant extracellular electrolyte, it plays an essential role in serum osmolality regulation, and therefore water flow between body compartments as water moves from compartment of lower osmolality to compartments of higher osmolality until homeostasis is achieved (Adroque & Madias, 2000; Buckley *et al.*, 2010).