Magnesium is considered to be a natural calcium antagonist owing to two facts; it was approved that magnesium and calcium competes with one another for the same binding site, also, magnesium inhibits calcium induced programmed cell death acting as an anti-apoptotic molecule antagonizing calcium-overload-triggered apoptosis (Eilat-Adar *et al.*, 2013; Nicklas *et al.*, 2014).

Inside nucleus, about 50% of magnesium is closely associated with nucleic acids and free nucleotides hence magnesium can neutralize negatively charged phosphate groups in these molecules as a cation (Wester, 1987; Pasternak *et al.*, 2010).

Owing to its capability to interact directly with proteins and therefore its ability to modulate histone phosphorylation, magnesium ions can affect cell cycle in the form of Mg-ATP (Pasternak *et al.*, 2010).

Furthermore, magnesium is involved in essential processes by activating enzymes important for DNA repair (endonuclease), replication (topoisomerase II), transcription, and it plays an essential role in maintaining the integrality of double stranded DNA molecules (Pasternak *et al.*, 2010).