

## **1. Introduction**

### **1.1 Cancer disease**

Human body is wonderfully designed to carry out the functions of life as we know them. Millions of cells that make up the body normally reproduce in an orderly manner, replacing worn out tissues and repairing injuries to maintain health (Ferlay *et al.*, 2010).

However, certain cells may begin to reproduce abnormally, massing together to form tumors (Nelson *et al.*, 2003). If a tumor is benign, it will remain self-contained. On the other hand, malignant or cancerous tumor will invade neighboring tissues, and spread through the blood and lymphatic system to distant parts of the body in a process called metastasis. Cancer cells are poorly differentiated, and are thus unable to carry out the physiological functions of their normal differentiated (mature) counterparts (Castillejos-Molina *et al.*, 2011).

Cancer is the most devastating affliction faced by human kind, and represents a vast medical problem. As a cause of mortality, it's second only to cardiovascular disease (Siegel *et al.*, 2011). The incidence of cancer increases with age in particular over the age of sixty, three in hundred men develop the disease each year. Cancer is a costly disease to diagnose and investigate and treatment is time consuming, labor intensive and usually requires hospital care (Mathers *et al.*, 2008).

### **1.2 Characteristics of malignant cells (cancer cells)**

Cancer cells undergo uncontrolled cellular proliferation, they lack cellular differentiation features (anaplastics). This means they have lost the structural and functional characteristic of the cell from which they originated and Posses the ability to invade surrounding tissues (Kerbel 2000).