SUMMARY AND CONCLUSION

Oxidative stress and inflammation, underlies many of the hallmarks of cancer. It have clearly recognized that oxidative stress players are expressed abnormally in cancers, which affects essential process of cancer initiation and progression, by acting on cell proliferation and anchorage independent cell growth, causing insensitivity to apoptosis, sustaining angiogenesis, by altering the migration/invasion programme through metabolic and epigenetic mechanisms. Reactive Oxygen Species (ROS) exert a key role affecting the hallmarks of cancer. ROS involved in proliferation, promoting tissue invasion and metastatic dissemination. Although inflammation has been known as a localized defensive response of tissue to irritation, injury or infection occasionally loss of function and has been a new realization of its role in cancer. While acute inflammation is a part of the defense response whereas chronic inflammation could lead to cancer. Around 25% of cancer deaths worldwide are due to chronic inflammation. Cancer is now becoming a leading killer for human beings.

According to the World Health Organization (WHO), about three-quarters of the world population relies upon traditional remedies for the health care of its people. In fact, naturally gifted herbs and/or plants are the oldest friends of mankind by providing food, shelter as well as medicine to cure various ailments. Naturally occurring plants have been investigated against several dreadful diseases include cancer, diabetes, ulcer etc.. Different parts of the plants include stem, leaves, flowers, bark and root extracts have been used in treating many diseases in traditional medicine (either as raw powder or juice) whereas in modern medicine isolated chemical compounds from this extract will be used. Identification of drugs from medicinal plants involves a variety of approach include botanical, phytochemical investigation, biological and molecular techniques. Natural extracts with their proven potential and less side effects has replaced the synthetically
derived chemicals used in modern allopathic medicine which remains unsafe to human with adverse side effects.

Bauhinia, a member of family Leguminosae, is widely distributed around the globe, especially in the tropical and sub-tropical countries. Traditionally this species has been used in the treatment of diarrhea, dysentery, skin diseases, leprosy, intestinal worms, tumors, wounds, ulcers, inflammations, scrofula, proctotasis, hemorrhoids, haemoptysis, menorrhagia and diabetes. Phytochemical and pharmacological studies of this genus are still ongoing. Extensive studies have been conducted on the compounds derived from the Bauhinia genus. Consequently, various flavonoids, steroids, alkaloids, terpenoids and phenolics have been isolated from a variety of Bauhinia species.

*B.tomentosa* has been reported to contain essential amino acid, minerals, quercetin isoquercetin and rutin. Aderogba et al., (2008) proved that ethanolic extract of *B.tomentosa* dried leaf contain kaempferol-7-O-rhamnoside, Kaempferol-3-O-glucoside, Quercetin-3-O-glucoside and Quercetin- 3-O-rutinoside. Therefore, to provide validity to the claims that *B.tomentosa* has numerous potential health benefits, in our study, we have evaluated and found that *B.tomentosa* exhibits anti-ulcer, anti-tumor, and anti-metastasis activity.

The present study shows that *B.tomentosa* could protect experimental ulcerative colitis induced by acetic acid. As evidenced by decreased colonic score disease activity index, serum NO, serum LDH, serum COX-2, MPO, colonic lipid peroxides, colonic TNF-α, i NOS and significantly increased colonic superoxide dismutase as well as colonic glutathione level. These reports were further supported showing minimal damage to the mucosa with slight sub-mucosal edema and mild inflammatory cell infiltration of colon in treated host during histopathology.
B. tomentosa also showed undoubted anti-tumor activity by inhibiting melanoma cell lines ascites and solid tumor development in vivo. In this study the B. tomentosa significantly reduced the host tumor volume, body weight, serum gamma-glutamyltransferase, nitric oxide (NO), glutathione level and tumor necrosis factor (TNF-α). B. tomentosa significantly increased in total WBC count, hemoglobin content, relative organ weight, bone marrow cellularity, α-esterase positive cells and increased the survival days of the host animals. In another studies using metastasis mouse model, B. tomentosa showed effective inhibition of metastasis lung nodules and significantly decreased in lung tissue hydroxyproline, hexosamine, uronic acid, serum sialic acid, serum gamma-glutamyltransferase and increased in survival rate of metastatic tumor bearing animals which were further supported by reduction of metastasizing cells in lung histopathology. Therefore these investigations provide a valid claim that B. tomentosa could be a plant based natural competent anti-tumor and anti-metastasis agent.

In conclusion, the overall result shows that B. tomentosa could significantly inhibit ulcerative colitis directly or through immune system activation and controls tumour and metastasis formations. Therefore overall results shows that B. tomentosa could be a new efficient plant based drug for ulcerative colitis and cancer therapy. Further purification to obtain a potentially active and pure compound will be undertaken in the future.