2. INTRODUCTION

Inflammatory bowel disease (IBD) refers to a group of poorly understood condition of chronic inflammation in digestive tract, most often the small or large bowel (although these disease can sometimes manifest themselves anywhere along the digestive tract or even outside of it in other organ systems such as joints, skin or eye). Inflammatory bowel disease including ulcerative colitis and crohn’s diseases are among the most challenging human illness (Hanan et al., 2006) and it is the second most common chronic inflammatory disorder after rheumatoid arthritis (Bickston et al., 1998).

Both types of IBD may increase risk of cancer. The risk of colorectal cancer in patients with IBD is increased 4 to 20-fold compared to the general population, and some malignancies can develop in apparently uninvolved sites (Mahmud et al., 2002). Patients with UC and CD have been reported to develop leukemia, suggesting a potential relationship between IBD and leukemia (Korzenik et al., 2006).

Although IBD etiology is largely unknown but the current literature suggests that multiple immune, genetic, and environmental factors influence both the initiation and progression of colitis (Strober et al., 1998). There is evidence for an intense local immune response associated with recruitment of lymphocytes and macrophages followed by release of soluble cytokines and other inflammatory mediators. Subsequent activation of these cells causes a self-augmenting cycle of cytokine production, cell recruitment and inflammation (Sartor, 1997; Shanahan, 2001). This uncontrolled immune system activation results in a sustained massive production of cytokines such as tumor necrosis factor (TNF)-α and interleukins (IL-1β and IL-8) (Inoue et al., 1999; Ogata et al., 2003). In addition to cytokines, leukotrienes, thromboxane, platelet-activating factor, nitric oxide and reactive oxygen species are also released from activated mucosal cells (Podolsky, 1991; Woywodt et al., 1999; MacDonald et al., 2000). Reactive oxygen species cause impairment of cellular membrane stability and cell death by lipid peroxidation (Flohe et al., 1985). Malondialdehyde (MDA) is an end product of the lipid peroxidation process (Marnett et al., 2002). An increase in free radicals causes overproduction of MDA. MDA level is commonly known as a marker of oxidative stress (Gawet et al., 2004).
Reactive oxygen species (ROS) have been proposed to contribute considerably in development of tissue injury (Millar et al., 1996; Fiocchi et al., 1998). A growing body of experimental and clinical data suggests that chronic gut inflammation may result from a dysregulated immune response to normal bacterial antigens. This uncontrolled immune system activation results in the sustained overproduction of reactive metabolites of oxygen and nitrogen. It is thought that some of the intestinal and/or colonic injury and dysfunction observed in IBD is due to elaboration of these reactive species (Fuseler et al., 2002). Attenuating oxidative stress in IBD patients has already been a therapeutic strategy for 50 years.

Most of the current therapies for inflammatory bowel diseases involve treatment with Glucocorticosteroids and 5-Aminosalicylic acid (Podolsky, 1991; Strober et al., 1998). Immunosuppressive drugs have also been used to control severe illness, regardless of the more serious complications and toxic side effects associated with them (Shanahan et al., 2001). 5-Aminosalicylic acid, are potent ROS scavengers (Miles et al., 1994). In many studies, it has been reported that antioxidants show beneficial effects on experimental colitis (Bauer et al., 2000; Kaya et al., 1999). Therapeutic efficacy of platelet activating factor (PAF) receptor antagonists were reported in animal models of IBD (Fiocchi et al., 1998).

The choice of treatment for IBD depends on the severity of the disease. Many people with IBD commonly turn to complementary and alternative remedies. many researcher have shown that herbal drugs Gingko biloba (Murat et al., 2005), Aegle marmelos (the pulp of fresh bael fruit) (Mehrotra et al., 2007), Holarrhena antidysentrica (Chopra et al., 1982), Bombax malabaricum, Cyperus rotundus, Woodfordia floribunda (Gerard et al., 2007) have good result in treatment of IBD or IBD related symptoms. These drugs give beneficial effect after long term use or taken in combination.

Thus, the aim of the current investigation is to evaluate or discover the right combination with less or no side effect to treat the inflammatory bowel disease.