1. INTRODUCTION

Central nervous system (CNS) disorders are of great concern in the present day world due to increasing stress and changing living conditions. Since epilepsy is one of the most prevalent CNS disorders, and as a number of side effects are associated with the present antiepileptic drug treatments (Chimakurthy et al., 2008). In the modern era of globalization, the routine life of mankind is very hectic and stressful. There is a high prevalence of mental and neurological disorders worldwide. Some of the CNS disorders will become the second leading cause of premature death or disability worldwide by the year 2020 (Wang et al., 2008). CNS disorders are complex disease states that represent major challenge for modern medicine. Although etiology is often unknown, it is established that multiple factors such as defect in genetics or epigenetic, the environment as well as the imbalance in neurotransmission receptor systems are all at play in determining individual’s susceptibility to disease (Bowie, 2008). Epilepsy is a common neurological disorder affecting an estimated 40-50 million people worldwide (Rudiger, 2002). Prevalence of chronic epilepsy is in the range of 4-10 per 1000 person. The incidence of epilepsy is highest among children below 7 year of age and in individuals of above 55 years. The reported prevalence of epilepsy in India is about 5.5 to 7.9 per 1000 people, which is about 1/18th of the world population (Nag, 2000). Epilepsy has now become the most serious brain disorder, which accounts for about 1% of the world’s prevailing of diseases (Vyawahare et al., 2007).

Plants may serve as the alternative sources for the development of new anticonvulsant agents due to their biological activities. Several plants used for the treatment of epilepsy in different systems of traditional medicine have shown antiepileptic activity when tested on animal models and many such plants remain to be scientifically investigated (Raza et al., 2001). Many attempts have been made in the past to obtain anticonvulsant of plant origin and these efforts will continue till a satisfactory treatment becomes available (Sonavane et al., 2002). Numerous herbal medicines are recognized as active in the CNS disorder viz., epilepsy that do not respond well to conventional treatments (Phillipson, 2001; Carlini, 2003). Presently, scientists are keen to obtain drugs from plant origin due to their specific curative properties and relative low adverse effect. The Ayurvedic system of medicine has a quite sophistical classification of medicinal plants as per the dominant pharmacological/therapeutic activity of mental functions (Vaidhya, 1997).
Boswellia serrata Roxb. ex Colebr. (Burseraceae) is a medium-sized tree of great economic value, distributed in the dry hilly forests of Rajasthan, Madhya Pradesh, Gujarat, Bihar, Assam and Orissa in India (Anonymous, 2005). The bark of the tree yields a milky liquid that oozes out and congeals slowly into a gum resin (also known as ‘sallai-guggal’ or ‘olibanum’). Sallai-guggal is used in the treatment of rheumatoid arthritis (Trubestein et al., 1999). A literature survey revealed that its pharmacological effects are mainly attributed to oleo-resin portion which contains pentacyclic and tetra cyclic triterpenoids known as boswellic acids (BAs) (Ammon, 2002). BAs possess anti-inflammatory, anti-arthritic, anti-rheumatic, anti-diarrhoeal, anti-hyperlipidemic, anti-asthmatic, anti-cancer, anti-microbial and analgesic activity. The BAs is a mixture of four major pentacyclic triterpene acid viz., β-boswellic acid, 3-acetyl β-boswellic acid (ABA), 11-keto β-boswellic acid and acetyl-11-keto-boswellic acid (AKBA). Amongst them, AKBA has been shown to be the most effective constituent (Gupta et al., 1997). The BAs are reported to be effective as a leukotriene inhibitor in neutrophilic granulocytes by a nonredox, noncompetitive inhibition of 5-lipoxygenase (Safayhi et al., 1997; Safayhi et al., 2000). Certain BAs have been described to inhibit elastase in leukocytes, to inhibit proliferation, induce apoptosis and to inhibits topoisomerases of leukoma and glioma cell lines, to inhibit lipopolysaccharide-mediated tumor nacrosis factor (TNFα) induction in monocytes by direct interaction with IkB kinase (Syrovets et al., 2000; Syrovets et al., 2005). In clinical trials, promising results were observed in patient with rheumatoid arthritis inflammatory bowel diseases (Ammon, 2002; Gupta et al., 2001; Gerhardt et al., 2001).

On the basis of literature survey, it is reported that oleo gum resin of plant Boswellia serrata is useful in convulsion. Hence the present work was carried out for scientific evaluation of BA for its anticonvulsant activity.