Summary and Conclusions
Introduction:

Aqueous extract of the fruits of *S. trifoliatus*, is used as a traditional herbal medicine for the treatment of hemicrania (migraine pain) in the Ayurvedic literature. This has been investigated in various *in vitro* and *in vivo* models of nociception, migraine and inflammation. Further, the investigations were undertaken to find out the mechanisms of action of *S. trifoliatus* in various behavioral and neurological animal models.

Summary:

1. The aqueous extract of *S. trifoliatus*, exhibited affinity towards, 5-HT$_{2B}$ receptors in isolated rat fundus assay. However, *S. trifoliatus* did not exhibit affinities towards acute migraine targets (viz. 5-HT$_{1B/1D}$ receptors and $\alpha$-adrenoceptors) in experiments conducted in various *in vitro* tissues.
2. At moderately high concentrations, aqueous extract of *S. trifoliatus* inhibited the serotonin release from human platelets.
3. Anti-nociceptive activity was exhibited by aqueous extract of *S. trifoliatus* in various central and peripheral pain models.
4. Analgesic activity was exhibited by aqueous extract of *S. trifoliatus* in hyperalgesic pain models predictive of *in vivo* migraine models.
5. Aqueous extract of *S. trifoliatus* exhibited anti-edematogenic activity in acute models of inflammation *in vitro* and *in vivo*.
6. Dopaminergic and serotonergic modulatory role of aqueous extract of *S. trifoliatus* was observed in various *in vitro* and *in vivo* behavioral and neurological animal models.
7. Aqueous extract of *S. trifoliatus* has affinities towards various receptors related to nociception and inhibition of key enzymes involved in the pain/inflammatory pathways. This was found out by receptor radio-ligand binding studies.
Conclusions:

1. Aqueous extract of S. trifoliatus exhibited antinociceptive effect in various pain models. Further S. trifoliatus has shown antihyperalgesic effect on predictive in vivo migraine models.
2. Aqueous extract of S. trifoliatus demonstrated potential anti-edematogenic effect in in vitro and various in vivo models of inflammation.
3. Aqueous extract of S. trifoliatus inhibited the behavioral syndromes mediated through dopamine D_2 and 5-HT_2 receptors.
4. Aqueous extract of S. trifoliatus inhibited serotonin release from human platelets.
5. Aqueous extract of S. trifoliatus inhibited the 5-HT induced contractions mediated through 5-HT_2B receptors in rat fundus.
6. Aqueous extract of S. trifoliatus exhibited receptor-binding affinities for dopamine D_2, 5-HT_2A receptors as well as cyclo-oxygenase, nitric oxide synthase enzymes and leukotrienes, which are in conformity with functional in vivo data.

Ayurvedic support of S. trifoliatus in the treatment of migraine (hemicrania) is well supported by the current studies. This provides new hope for the development of novel leads from herbs for treatment of migraine.