SUMMARY AND CONCLUSION
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Osteoarthritis (OA), the most common form of arthritis, is associated with the chondrocyte proliferation, uncontrolled proteolysis of extracellular matrix, osteophyte formation, synovial fibrosis and chronic disability in the 70% of old and 40% of adult population. It is a multifactorial disorder to which several factors-such as obesity, stress, and age contribute to the progression of disease.

The literature survey revealed that NO is a free radical that is considered to play a significant role in the progression of OA. In addition, ROS and inflammatory mediators like TNF-α, IL-1β, IL-6, COX-2 and 5-LOX largely contribute to the degeneration of cartilage and bone by further stimulating synovial fibroblast to secrete inflammatory cytokines and ECM degrading enzymes such as MMP-9. These changes result from large series of functional events. Under some disorders like OA, the increase in oxidants and decrease in antioxidants cannot be prevented, and the oxidative/anti-oxidative balance shifts toward the oxidative status. Antioxidants are compounds that scavenge, and suppress the formation of free radicals, or combat their actions. Plant kingdom is a rich source of active components that have been shown to promote the cellular and humoral immune response in different ways. This property has increased the interest of the scientific area to discover and develop various medicinal therapeutic effects against several ailments. Several medicinal plants have been reported to have the gastroprotective effects, previous reports suggest that Silymarin has long been used in clinic and its safety was confirmed for a long time, the application of Silymarin against gastric diseases might contribute to the management of disease.

The severity of the disease is generally scored according to a number of standardized systems such as X-ray radiology. Change in JSN assessed by radiography remains the gold standard.

Our results showed that treatment with SMN and SMN+CLX has a better improvement in JSN in arthritis rats.

Nowadays companies looking for drugs which can inhibit both 5-LOX as well as COX enzymes. SMN and SMN+CLX have inhibited the elevated level of COX and 5-LOX in serum.
TNF-α and IL-1 have been suggested as key players in OA pathogenesis. The major finding from this study was that not only SMN but also SMN+CLX results in significant neutralisation of both TNF-α and IL-1 cytokines.

We evaluated the level of MMP-9 level which stimulate the production of degenerative enzymes in serum samples, MMP-9 level is also inhibited.

HA is a macromolecule which is important for lubrication of joint tissue.

At present, good quality randomized controlled trials examining the disease modifying effects of celecoxib are lacking. Hence, inhibiting cartilage and bone deteriorative enzymes, inflammatory mediators and associated oxidative stress would be an attractive feature in anti-arthritic drug formulation.

The major outcome of thesis:

- Treatment with SMN and SMN+CLX reduced the level of important oxidative stresses in arthritis such as MDA, ROS.
- Inhibition of pro-inflammatory cytokines such as IL-1β and TNF-α.
- Inhibition of MMP-9 and HA with zymogram technique.
- Improvement in JSN in X-ray images.
- Reduction in inflammatory sings and cartilage surface in histopathology analysis.