Plant materials are used throughout the developed and developing world as home remedies, in over-the-counter drug products, and as raw material for the pharmaceutical industry, and they represent a substantial proportion of the global drug market. Certain herbs have become popular over the years, but the public, medical practitioners and the media still have a poor understanding of herbal medicine. Evidence is emerging on the dangers of herbs. As in most situations, the truth lies hidden under the media hype, poorly understood science, and exaggerated claims. Lack of experience, information, and education about herbs make consumers, physicians, and other orthodox health care provider’s easy victims of market exploitation and herbal myths. There is no rational reason behind the tendency to equate “natural” with “harmlessness.”

The fact that something is natural does not necessarily make it safe or effective. In addition, a lack of knowledge of phytochemistry leads to misinterpretation and misunderstanding. It is very likely that some herbs will have side effects, interact with other medications, and be toxic. Information on isolated constituents should not be applied directly to the whole herb and studies on in vitro forms should not be confused with oral administration which was established by pharmacological screenings.

In current scenario, herbs are the potent sources of medicines used in the treatment of various disease and disorders. Since, plants are used as medicine there is prompt need of evaluation of plant species, therefore, the present work was conceived to evaluate the phytochemical and pharmacological screening of few Indian medicinal plants.

The Pharmacognostical evaluation of Indian medicinal plants viz., *Abutilon muticum* (Leaves), *Celosia argentea* Linn. (Leaves), *Crotalaria burhia* Hamilt. (Leaves), *Salvadora oleoides* Dene. (Root bark) and *Salvadora persica* Linn. (Root bark) were studied which include the morphological and physicochemical studies. The morphological studies of species plant part were studied which will be beneficial for
the validation and assessment of quality control parameters of these plants to find out the presence of adulterant if any in order to establish the quality, safety and efficacy.

From the data of physicochemical analysis it was concluded that these plants has optimum level of carbon content which was establish by the ash content data. The moisture content was found to be maximum in CBL followed by AML, SORB, and SPRB & CAL. The swelling index was found to be maximum in SORB i.e, 2.2 followed by 2.7 1.9 in SPRB and 1.1 in CAL, while AML and CBL have-not any swelling index. The FOM was found maximum in CBL followed by SORB, CAL, SPRB abd AML i.e., 2.9, 2.7, 2.4, 2.2 and 2.1 respectively. The extractive values results indicate that alcohol soluble extractive value, soluble extractive value and ether soluble extractive value was found maximum in CBL, CBL and AML respectively. The percentage yield value of various extracts was estimated and results indicate that AECBL was found maximum i.e., 12.5% w/w whereas MEAML was found maximum i.e, 16.3% w/w.

From the results of preliminary phytochemical screening it was concluded that the aqueous and methanolic extracts contained various phytochemicals such as alkaloids, glycosides, saponins, carbohydrates etc.

The aqueous and methanolic extracts of plants were screened for acute toxicity study by OECD guideline no. 423 for determination of LD₅₀. The results showed that the aqueous and methanolic extracts were belonging to category-5(>2000-5000). So, LD₅₀ was 2500 mg/kg, therefore, ED₅₀ was 250 mg/kg for all the extracts.

The aqueous and methanolic extracts at dose of 250 mg/kg caused a dose-dependent and significant (p < 0.001) inhibition of the writhes. The percentage inhibitions were in the range of 7.60 to 78.96 for different extracts. The SOAE has maximum percentage inhibition followed by SOME i.e., 78.96 and 77.47 respectively as compared to standard drug aspirin which having percentage inhibition of 98.62. While some of the extract showed very low percentage inhibition viz., CAME, AMAE i.e., 6.42 and 7.60 respectively. This effect (analgesic effect) was significant (p < 0.001) compared to the control. Standard drug Aspirin 100 mg/kg produced a significant (p < 0.001) increase in the latency response compared to the control. In the hot plate and tail flick test the extracts exhibited a dose-dependent increase in the tail flick latency in rats (Table 3). The results were significant (p < 0.001) for 250 mg/kg at 3 hr as
Conclusion

compared to control. The similar results were obtained and the analgesic activity was found to be in the order as obtained in acetic acid-induced writhing. Standard drug Aspirin 100 mg/kg elicited a significant (p < 0.001) increase in the tail flick latency at 3 hr. post treatment time point. The increases in the tail flick latency elicited by the extracts were significantly.

The flavonoids were reported to have analgesic activity by reduced availability of prostaglandins. Hence, the presence of flavonoids in the methanolic extract may also contribute for the analgesic activity. From the results of the present study it can be inferred that methanolic extract have effective analgesic agents. The study showed that the methanolic extract of the produced significant analgesia both centrally and peripherally. Peripherally acting analgesics act by blocking the generation of impulses at chemoreceptor site of pain, while centrally acting analgesics not only raise the threshold for pain, but also alter the physiological response to pain and suppress the patient’s anxiety and apprehension. As the analgesic action is decreased partially some other non-opioid mechanisms may also be involved. Standard NSAIDs like aspirin offer relief from inflammatory pain by suppressing the formation of pain substances in the peripheral tissues, where prostaglandin and bradykinin were suggested to play an important role in the pain process. Prostaglandins elicit pain by direct stimulation of sensory nerve endings to other pain provoking stimuli. Therefore, the methanolic extracts of might also suppress the formation of these substances or antagonize the action of these substances and thus exerts its analgesic activity in acetic acid induced writhing test.

The effect of extract on carrageenan induced paw oedema in rats indicates that the extract found to have significant (P < 0.0001) anti-inflammatory activity in rats. The extract at the test doses 250 mg/kg b.w. reduced the oedema induced by carrageenan and paw 0.18 ± 0.02 and 0.30 ± 0.04 respectively which was found to be significant as compared to control.

Folkloric treatment of inflammation of various etiologies, using medicinal plants, is well known to masters of the art of traditional medicine practice. Pharmacological screening of extracts of has revealed that these possess potent anti-inflammatory effect in the topical and systemic models of acute inflammation. These extracts may have inhibited the release of pro-inflammatory mediators of acute inflammation such as histamine and prostaglandin. Interestingly, the extracts caused gastrointestinal
irritation in rats typical of anti-inflammatory prostaglandin inhibitors such as the non-steroidal anti-inflammatory drugs NSAIDs. Thus, these extracts may exert anti-inflammatory effect by inhibiting the synthesis of prostaglandin. In addition to cyclooxygenase enzyme inhibition, methylsalicylate exerts counter-irritant effect on topical application, which reduces inflammation by diverting hyperemia away from inflamed sites and may be responsible for the topical anti-inflammatory effect of the extract and fractions and that of the root poultice when applied topically in herbal therapy of inflammatory disorders. The low LD$_{50}$ values suggest a possible risk of acute toxicity. The toxicity may not be unrelated to the molluscaicidal and insecticidal or insect repellent properties which may underlie the use. The magnitude of activity obtained at the two dose levels used indicates high potency of anti-inflammatory effect and together with the array of compounds already isolated from the plant provide impetus.

The data of the blood glucose level of rats treated with Alloxan (150mg/kg body weight) produced diabetes within 72 hours. After 72 hours of Alloxan administered the blood glucose levels of rats were observed. It was observed that significant lowering of sugar in methanolic extract. The administration of CAME at a dose of 250 mg/kg body weight showed significant anti-hyperglycaemic effect (115.33±0.881) at 21$^{st}$ day which was evident from the 1$^{st}$ day on wards as compared to standard (114.83±1.302). The methanolic extract showed better efficacy than the aqueous extract in all the treated extract. The anti-hyperglycaemic effect of the extract on the fasting blood sugar levels on diabetic rats is shown in table. The decreasing blood glucose levels are comparable with that of 10 mg/kg of Glibenclamide. The Glibenclamide (10 mg/kg body weight) shows significant effect on compare to the initial and more significant effect on the 7$^{th}$ Day compare to the initial. The methanolic extract (250mg/kg body weight) shows significant (P*<0.01), effect.

Results of anti-diabetic activity of extracts established the scientific basis for the utility of these plants in the treatment of diabetes. The aqueous and methanolic extracts have shown significant reduction in blood glucose levels in both, glucose loaded and alloxan induced diabetic rats. The methanolic extract produced maximum anti-diabetic activity and is higher than the hypoglycaemic activity of Glibenclamide in the diabetic rats. Therefore it is obvious that the fractionation with methanol has enriched the active principles. In glucose loaded animals, the drug has reduced the
blood glucose to the normal levels. It is possible that the drug may be acting by potentiating the pancreatic secretion or increasing the glucose uptake. Both aqueous and methanol extracts has reduced the glucose levels, in prolonged treatment study. Hypercholesterolemia, hypertriglyceridemia, hyperurea have been reported to occur in alloxan diabetic rats and a significant increased observed in our experiment was in accordance to these studies. Histopathological examination of pancreas showed the recovery of damaged tissues when section of treated groups compared with diabetic control. In conclusion, these extract showed significant anti-diabetic effect in diabetic rats after oral administration. Thus the claim made by the traditional Indian systems of medicine regarding the use of these plants in the treatment of diabetes stands confirms.

Lipid profile in serum and liver indicates that increased triglyceride (TG) and cholesterol levels were significantly reduced by treatment of extracts. The extracts markedly lower the levels of serum cholesterol and VLDL. The decrease in cholesterol may indicate increased oxidation of mobilized fatty acids of inhibition or lipolysis. The present investigation shows that induced animal displayed hyperlipidemia as shown by their elevated levels of serum and liver cholesterol, triglyceride, HDL, LDL. It can be concluded that extracts were effective in reduction of TC, TG, LDL and HDL in a dose dependant manner.

Triton WR-1339 acts as a surfactant and suppresses the action of lipases to block the uptake of lipoproteins from circulation by extra hepatic tissues, resulting into increased blood lipid concentration. The biphasic nature of triton - induced hyperlipidemia is helpful in understanding the mode of action of hypolipidemia agents. Drugs interfering with lipid biosynthesis or uptake will be active in the synthesis phase and metabolism will be active in the excretory phase. In the present study, the methanol extracts of plants reduced the cholesterol and triglycerides in a manner similar to the reduction facilitated by atorvastatin.

The hypolipidemic activities of atorvastatin and the in both synthesis and excretory phases of 1% Cholesterol induced hyperlipidemia in rabbits. 1% Cholesterol induces hyperlipidemia by increasing the hepatic synthesis of cholesterol and triglycerides. So, it can be assumed that active principle in extract inhibits the biosynthesis of cholesterol and triglycerides and therefore can be used for the prevention (prophylactic) of hyperlipidemia. In fact, flavonoids, steroids, saponins and
anthocyanin, a heterogeneous group of ubiquitous plant polyphenols have exhibited a variety of pharmacological activities including the anti-atherogenesis. The plant steroids reduce the absorption of cholesterol and thus increase faecal excretion of cholesterol. In the present study, methanol extraction of the plants reduces the level of cholesterol, triglycerides and LDL and increase the level of HDL, which may probably be due to the presence of steroids, flavonoids and triterpenoids, since all the extracts showed the presence of phytoconstituents like steroids, flavonoids and triterpenoids. Hence the present study confirms the significant antihyperlipidemic potential of these plants owing to its ability to reduce level of total cholesterol, triglycerides, LDL and increasing HDL level.

Hence, from the present work, it was concluded that the selected medicinal plants of Indian origin possess optimum activity which will claims their folk-lore uses as mentioned in traditional system of medicine.