2.1 Review of literature of *Prunus persica* plant:

- **Belhadj et al. (2016)** were studied bioactive molecules from fruits of four varieties of *Prunus persica* at different stages of ripening (green, small orange, red). The antioxidant activity, using four different tests (DPPH radical scavenging activity, reducing power, β carotene bleaching system) showed that the variety Chatos exhibited the highest antioxidant activity comparing with others varieties. The antibacterial activity of *Prunus persica* varieties studied seems to be more sensitive against *Staphylococcus aureus* and *Listeria monocytogenes*.

- **Wei et al. (2015)** were reported that Ethyl acetate extract (EAE) was shown to stimulate rat colonic muscle contraction in a dose-dependent manner. The numbers of mast cells and the level of histamine were increased in the EAE group and the stimulatory effect of ethyl acetate extract was completely blocked by ketotifen. The data demonstrate that the stimulatory action of EAE on gastrointestinal motility is mediated by mast cell degranulation, which further increases histamine levels in the gut. This study therefore provides a scientific basis for the medicinal use of *Prunus persica* (L.) in gut motility disorders such as indigestion and constipation. However, more advanced evidence is required before EAE is employed as a potential therapeutic drug in the clinic.

- **Giuliana et al. (2014)** were investigated Carbohydrate-Free Peach (*Prunus persica*) and Plum (*Prunus domestica*) Juice Affects Fecal Microbial Ecology in an Obese Animal Model. Growing evidence shows the potential of nutritional interventions to treat obesity but most investigations have
utilized non-digestible carbohydrates only. Peach and plum contain high amounts of polyphenols, compounds with demonstrated anti-obesity effects. The underlying process of successfully treating obesity using polyphenols may involve an alteration of the intestinal microbiota. However, this phenomenon is not well understood.

- **Kim et al. (2014)** investigated the physicochemical properties of unripe peach-*Prunus persica* cv. Mibaekdo (Mibaekdo) and *Prunus persica* cv. Nagasawa Hakuho (Nagasawa Hakuho) as an alternative to food supplement while Japanese apricot (*Prunus mume* cv. Backaha) (Backaha) was used as a control sample. They reported the total polyphenol content of unripe peach ranged between 137.27-151.64 µg/g whereas that of apricot was 160.73 µg/g. DPPH radical scavenging activities of Backaha was the highest (89.16%) followed by Mibaekdo (85.05%) and Nagasawa Hakuho (41.50%). The highest amount of oxalic acid (612.8 mg/100 g) was observed in Mibaekdo while that of Nagasawa Hakuho and Backaha were (184.6±18.1) and (334.8±16.1) mg/100 g, respectively. Amygdalin contents of Mibaekdo, Nagasawa Hakuho and Backaha were 486.61, 548.60 and 174.28 µg/g, respectively. The results suggest that the unripe fruit of peach has a significant biochemical potential of using as a food supplement with potential health benefit for human health.

- **Aziz et al. (2013)** were investigated the crude methanolic extract of *Prunus persica* and its various fractions namely petroleum ether, dichloromethane, chloroform and ethyl acetate for their antibacterial, antifungal, phytotoxic and insecticidal properties. The methanolic extract showed significant antibacterial activity against *Klebsiella pneumonia* and *Enterococcus*
faecalis. The petroleum ether fraction also demonstrated significant antibacterial activity against Escherichia coli and Staphylococcus aureus. The dichloromethane fraction inhibited the growth of E. coli and K. pneumonia. The chloroform fraction showed no significant activity against E. coli, K. pneumonia and Bacillus subtilis. The ethyl acetate fraction indicated significant activity against E. faecalis.

- Christabel et al. (2012) investigated in vitro antioxidant studies and the scavenging potential of pulp and peel of Prunus persica fruit on different solvent systems.

- Bhattacharjee et al. (2011) evaluated the anti-inflammatory activity of the aqueous extracts (AEPp) of Prunus persica L. leaves on carrageenin induced oedema. The test sample at the dose of 200 mg/kg/p.o. were found to cause significant (P<0.001) inhibition of carrageenin induced oedema.

- Reddy et al. (2010) reported that the ethanolic extract of Prunus persica posses’ significant hepatoprotective activity in paracetamol induced hepatotoxic rats.

- Park et al. (2010) reported the hypoglycemic effect for Prevention of Type-2 Diabetes, total phenolic contents and anti-oxidant activities of some fruit crops including Prunus persica.

- Deb et al. (2010) has been evaluated the antioxidant activity of aqueous extract of Prunus persica.
- Shin et al. (2010) investigated the effect of ethanol extract of fruits of Prunus persica (L) on the mast cell-mediated allergic inflammation and studied the possible mechanism of action.

- Chai et al. (2007) has been isolated a new alkaloid Persicaside from a methanol (EtOA)-soluble extract of Prunus persica seed. It was purified by a combination of chromatographic techniques and recrystallization. The structure of Persicaside was determined by extensive NMR experiments and mass spectroscopic data. It inhibited nitric oxide (NO) and prostaglandin E2 (PGE2) production via suppression of inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX-2) expression in rat osteoblast sarcoma cells (ROS 17/2.8) in concentration-dependent manner whereas it spares the COX-1 enzyme activity.

- Suh et al. (2006) screened Prunus persica water extract for the treatment of Alzheimer's disease. & the effects of oral administration were examined with comparison of those of selective butyrylcholinesterase inhibitors of 9-amino-1,2,3,4-tetrahydroacridine hydrochloride (tacrine) and tetraidopropylpyrophosphoramide and a selective AChE inhibitor, donepezil, on the cholinesterase activity in the brain and plasma of rats.

- Mahattanatawee et al. (2006) reported the unripe fruits are classified as unsuitable for consumption due to their astringent taste. The astringency of the unripe fruits is due to the high tannin content, which decreases with ripening and contributes appreciably to the antioxidant activity of the fruit.

- Fukuda et al. (2003) has been isolated Four minor components, along with the major cyanogenic glycosides, amygdalin and prunasin, Prunus persica
seeds characterized as mandelic acid glycosides. The anti-tumor promoting activity of these compounds also has been examined in both in vitro and in vivo assays.

- **Kim et al. (2003)** has been used *Prunus persica* seed water extract in the treatment of the degenerative disorders, such as hypermenorrhea and dysmenorrhea, in Taiwan, China, Japan and Korea. In this study, the effects of oral administration of PPE on the extracellular acetylcholine concentration in the hippocampus of rats were evaluated, and compared to that of tacrine (9-amino-1,2,3,4-tetrahydroacridine hydrochloride), a well-known and centrally acting acetylcholinesterase (AChE) inhibitor, which had been developed for the treatment of Alzheimer's disease.

- **Gil et al. (2002)** The contributions of phenolic compounds to antioxidant activity were much greater than those of vitamin C and carotenoids in both plums and peaches with a strong positive correlation reported between total phenolics and antioxidant activity of nectarines, peaches and plums.

### 2.2 Review of literature of *Trichosanthes dioica* plant:

- **Md. Ariful Islam et al. (2016)** investigated cytotoxic activities of the alcoholic *T. dioica*. Leaves extracts of the root of T. dioica was subjected to Brine Shrimp lethality bioassay for possible cytotoxicity where, ethanol extract were found to be moderately cytotoxic showing LC50 of 26.89μg/ml while the LC50 of the reference anticancer drug vincristine sulphate was 0.98 μg/ml. Altogether, these result suggest that the ethanolic extract could be used as a potential antioxidant and anti-inflammatory agents.
Kaushik et al. (2014) scientifically validated the use of *Trichosanthes dioica* fruits in prevention of diabetes by evaluating their anti hyperglycemic and antilipidemic potential. The effect was observed on fasting blood glucose (FBG) levels of STZ-nicotinamide (45, 110 mg/kg BW, respectively, i.p) induced diabetic rats after seven days daily administration of chloroform extract rich in moderately polar components (250 mg/Kg BW, p.o). FBG was significantly reduced (p < 0.05 %), when estimated on seventh day of treatment with fruit extract compared to diabetic control.

Bhattacharya et al. (2012) explored the anti-nociceptive activity of *T. dioica* root extracts by both acetic acid induced writhing method and tail flick method in mice to assess peripheral (non-narcotic) and central (narcotic) type of activities respectively. The locomotor activity was evaluated to assess the central nervous system (CNS) depressant property of extracts on the motor activity in mice.

Akter et al. (2011) found ethyl acetate, methanol and water extracts of *T. dioica* showing a significant antidiarrhoeal activity against castor oil-induced and magnesium sulphate-induced diarrhoea in experimental animals. The methanol extract showed almost similar activity as Loperamide, when tested at 200 and 400 mg/kg doses and statistically significant reduction in the frequency of defecation when compared to control mice. The ethyl acetate, methanol and water extracts were also found to alleviate the diarrhoeic condition. It is possible that the antisecretory and antioxidant properties of different phytoconstituents may contribute to the observed antidiarrhoeal effect. The antidiarrhoeal activity of flavonoids has been ascribed to their ability to inhibit intestinal motility and hydro-electrolytic secretion.
• Bhattacharya et al. (2011) studied laxative action in *T. dioica* Roxb. (Cucurbitaceae) in Swiss albino mice. The laxative activity was evaluated by assessing the excretory bowel activities in naïve (non-constipated) and in drug (loperamide)-induced constipation in mice. Further, the gastrointestinal transit was measured in both naïve and in constipated mice. Castor oil was used as the reference. Thus, *T. dioica* root demonstrated stimulant laxative activity in Swiss mice, validating its traditional usage in India.

• Alam et al. (2011) upon studying the antioxidant activity in fruits of *Trichosanthes dioica*. The ethanolic extracts of *Trichosanthes dioica*, showed significant antioxidant, DPPH radical scavenging activity and Nitric oxide scavenging activity. *T. dioica* ethanolic extract showed significant anti-inflammatory and antipyretic activity. Thus showing its significance in multiutility during disease complications, like inappropriate fever development during treatment of infections.

• Bhandari et al. (2010) found the plant polyphenols, a diverse group of phenolic compounds (flavanols, flavanoids,tannic acid,anthocyanins,phenolic acid, etc.) posses ideal structural chemistry for free radical scavenging activity and exhibit wide range of physiological properties, such as, anti-allergic, antiatherogenic, anti-inflammatory, anti-microbial, antithromotic, cardioprotective and vasodialatory effects.

• Shalina et al. (2010) found hypoglycaemic potential in *T. dioica*, the study has detected the antidiabetic activity of aqueous extract of *T. dioica* in Streptozotocin induced diabetes rats. The aqueous extract of *T. dioica* has been valuable in the treatment of diabetes mellitus as it lowers serum glucose levels and significantly increases body weight of diabetic rats.
• Shivhare et al. (2010) evaluated the antioxidant activity of fruits of *Trichosanthes dioica* (Cucurbitaceae) and compared with ascorbic acid (Standard). Anti-oxidant activity of aqueous extract of *Trichosanthes dioica* fruits was studied for its free radical scavenging property in different *in vitro* methods as 1, 1 diphenyl-2- picryl hydrazyl, nitric oxide, reducing power assay and hydrogen peroxide radical method. The findings could justify the inclusion of this plant in the management of antioxidant activity.

• Shivhare et al. (2010) studied methanolic extract of *Trichosanthes dioica* for assessment of healing potential in the form of simple ointment using full thickness burn wound model in rats. The effect produced by the extract ointment showed significant healing when compared with the control and standard groups.

• Rai et al. (2010) reported the *in vitro* assessment of antimicrobial activity of different concentration of extracts of different parts of *Trichosanthes dioica*. Five clinical isolates of different bacterial strains were used and the disc diffusion method was opted. The results revealed that leaves, fruits and seeds, all three parts of *Trichosanthes dioica* plant, can be used as anti-bacterial agents.

• Shivhare et al. (2010) reported scientific evaluation for the wound healing potential of methanolic (MeOH) extract of *Trichosanthes dioica* fruits.
• Sharma et al. (2009) determined the total phenolic content of *T. dioica* leaves, which was about two times more than that obtained from the fruits and seeds of *M. olifera* and *E. officinalis*, respectively.

• Rai et al. (2008) showed the glycemic attributes of an aqueous extract of *Trichosanthes dioica* leaves in normal as well as various diabetic models. The variable doses of 250, 500, and 750 mg kg$^{-1}$ body weight of the extract were administrated orally. This study indicated that the aqueous extract of *T. dioica* leaves has good hypoglycemic potential along with a high anti-diabetic profile.

• Rai et al. (2008) showed in rats with streptozotocin induced severe diabetes mellitus, aqueous extract of *T. dioica* fruits dose of 1000mg/kg body weight daily once for 28 days reduced the levels of fasting blood glucose, postprandial glucose, alanine amino transferase, alkaline phosphatase, creatinine, urine sugar and urine protein where as total protein and body weight was increased.

• Ghaisas et al. (2008) reported hepatoprotective activity of aqueous and ethanolic extract of *Trichosanthes dioica* (whole plant) in ferrous sulphate-induced hepatotoxicity.

• Sharmila et al. (2007) observed cholesterol-lowering activity of the aqueous fruit extract of *Trichosanthes dioica* Roxb. in normal and streptozotocin diabetic rats.

• (Uddin et al., 2005) studied Antidiarrheal activity of the extracts was tested in castor oil-induced diarrhoea in mice according to the method described by Shoba and Thomas. In castor oil-induced diarrhoea, all the four extracts of T.
dioica at doses of 200 mg/kg and 400 mg/kg reduced the total number of faeces in a dose dependent manner. The inhibition of characteristic diarrhoeal droppings was also recorded at both doses in magnesium sulphate-induced diarrhoea. The extracts were found to reduce the total number of faeces significantly when compared to control. Methanol extract at 400 mg/kg dose showed the highest inhibition of diarrhoeal droppings in both model. The antidiarrhoeal activity was evident from the reduction of total number of wet faeces in the test groups in the experiment. Magnesium sulphate has been reported to induce diarrhoea by increasing the volume of intestinal content through prevention of reabsorption of water.

- **Sultan et al. (2004)** studied purification, physicochemical characterization, saccharide specificity, and chemical modification of a Gal/GalNAc specific lectin from the seeds of *Trichosanthes dioica*.

- **Rane et al. (2003)** studied wound healing potential in the fruit extracts of *T. dioica*. During the experiment, a better healing pattern with complete wound closure was observed in standard and treated group within 10 and 14 days respectively while it was about 22 days in control rats.

- **Gulcin et al. (2002)** studied antioxidant activity of melatonin and found reactive oxygen species of various forms and found free radicals such as superoxide anion radicals (O$_2^-$) and hydroxyl radicals (OH$^*$), as well as non free radicals species (H$_2$O$_2$) and the singled oxygen. In a study carried out by Gulcin et al. (2011), it was found that excessive generation of ROS got induced by various stimuli can easily initiate the peroxidation of the membrane lipids,
leading to the accumulation of lipid peroxidation. The peroxidation products and their secondary oxidation products such as Malondialdehyde (MDA) and 4-hydroxynonenal can react with biological substrates such as proteins, amines and deoxyribonucleic acids leading to variety of pathophysiological processes such as inflammation, diabetes, genotoxicity and cancer.

- **Fulzul et al. (2001)** reported anti-inflammatory activity of polyherbal formulation “Jatyadi Ghrita”, the ingredients of Jatyadi Ghrita are *Jasmine officinale, Azadirachta indica, Berberis aristata, Curcuma longa, Picrorrhiza kurroa, Rubia cordifolia, Trichosanthes dioica, Aristolochia indica, Hemidesmus indicus, Randio spinosa, Glycyrrhiza glabra & Cow’s ghee.*

- **Kabir et al. (2000)** reported the seeds of *T. dioica* contain a large amount of peptides. The seed peptides have the unique property of being resistant to the action of silver nitrate, a sensitive reagent commonly used to stain proteins.

- **Bhujbal (1999)** developed polyherbal formulation including *T. dioica* is useful in skin disorder. Fifty cases of various skin diseases were treated with decoction of a mixture of *Trichosanthes* & other herbal crude drugs in a dose of 20 ml to 40 ml empty stomach with hot water & honey for 4 to 6 weeks. The drug was found to be useful in the entire patient & no side effects were observed.

- **Hariti et al. (1996)** reported that the fixed oil of seeds of *Trichosanthes* species including *T. dioica* have antifungal property.
• Hariti et al. (1995) showed antibacterial activity of the unsaponifiable fraction of the fixed oil of *T. dioica* seeds against *Bacilus anthracis* & *Xanthomonas malrcearum*.

• Sharma et al. (1992) showed influence of alcoholic extract of whole fruit of *T. dioica* on blood sugar, serum lipids, lipoproteins and faecal sterols in normal albino rabbits. It was observed that this extract lowered the blood sugar, total cholesterol, low density lipoprotein cholesterol and triglyceride levels, and increased the high density lipoprotein cholesterol, phospholipid and faecal sterol levels.

• Chandrasekar et al. (1988) reported the medicinal property of pointed gourd in lowering blood sugar level in rats.

2.3 Review of literature of anthelmintic activity:

• Macedo et al. (2015) evaluated the efficacy of *Cymbopogon citratus* decoction (CcD), *C. citratus* essential oil (CcEo) and citral against *Haemonchus contortus* using in vitro egg hatch test (EHT) and larval development test (LDT) and an in vivo test using a *Meriones unguiculatus* (gerbil) model. The effect of 800 mg/kg CcEo was evaluated in gerbils that had been artificially infected with 5,000 third-stage *H. contortus* larvae.

• Sarada et al. (2013) has been evaluated anthelmintic activity of ethyl acetate, methanol and aqueous crude extract of *M. elengi* roots and *D. sepiaria* leaves on Indian adult earthworms (*Pheritima posthuma*). All the extracts exhibited concentration dependent activity at tested concentrations of 10-80 mg/ml. At concentrations 80mg/ml the aqueous extracts of both plants showed better
activity with paralysis time (8.3, 12.2 min) and death times (14.0, 27.3 min) respectively when compared to the standard Piperazine citrate at 10mg/ml. They suggested these plants as potent anthelmintics.

- **Raveesha et al. (2012)** investigated methanol extracts of *Tinospora sinensis* stem and callus for Anthelmintic property against *Esinia fitida*. Four concentrations (10, 25, 50, and 100 mg/ml) of both extracts were assessed in the bioassay of the worm, by the determination of time of paralysis and time of death. Both stem and callus extracts at different concentrations showed dose-dependent vermicidal activities.

- **Sharma et al. (2011)** reported the anthelmintic effect of *Euphorbia prostrata* extracts on adult Indian earthworm, *Pheritima posthuma*, due to its anatomical and physiological resemblance with the intestinal roundworm parasite of human beings. The study was concluded that both the aqueous and ethanolic extracts of this plant have potent dose dependent anthelmintic activity comparable to the standard drug, Piperazine citrate. The ethanolic extracts showed better activity than the aqueous extracts.

- **Nilesh et al. (2011)** reported that the extracts of *caesalpinia pulcherrima* bark produced a significant anthelmintic activity in dose dependent manner. Hydro-alcoholic extract took less time to cause paralysis & death of the earthworms as compared to aqueous extract. Thus hydro-alcoholic extract was found to be more potent than aqueous extract. *Caesalpinia pulcherrima*. Barks possess potent anthelmintic activity. Thus *Caesalpinia pulcherrima* bark can be used in controlling the diseases caused by worms.
CHAPTER 2 REVIEW OF LITERATURE

- **Das et al.**(2011) have been evaluated the anthelmintic activity of different extracts of leaves of *Juglans regia* L. Different extracts of the plant material were tested against adult Indian earthworms *Pheritima posthuma* (Pheritimidae) as test worms. The bioassay involved determination of the time of paralysis and time of death control. Piperazine citrate (10 mg/mL) was used as standard reference drug.

- **Ajaiyeoba et al.** (2001) investigated Methanol extracts of the leaves and stems of *Gynandropsis gynandra* and *Buchholzia coriaceae* for their activity against *Fasciola gigantica*, *Taenia solium* and *Pheritima posthuma*, respectively. Five concentrations (10–100 mg/ml) of each extract were studied in the bioassay, which involved determination of time of paralysis and time of death of the worms. All the extracts exhibited considerable anthelmintic activities. Piperazine citrate (10 mg/ml) and distilled water were included in the assay as standard reference drug and control, respectively.

**Some other plants investigated as anthelmintic drugs:**

- **Chenopodium album** L: Seed kernel and crude aqueous and methanolic extract of the plant part have been used and tested against trichostrongylid nematodes of sheep and tested for adult motility assay and egg hatch test. They found that plant exhibited dose and time-dependent anthelmintic effects by causing mortality of worms and inhibition of egg hatching (**Jabbar et al.**, 2007).

- **Caesalpinia crista** L: Whole plant and crude aqueous and methanolic extract, Trichostrongylid nematodes of sheep, adult motility assay and egg hatch test, plant exhibited dose and time-dependent anthelmintic effects by causing mortality of worms and inhibition of egg hatching (**Jabbar et al.**, 2007).
• **Trianthema portulacastrum** L.: Whole plant was extracted with crude aqueous and methanol and the extracts are veteran adjacent to gastrointestinal nematodes of sheep by adult motility assay and egg hatch test. The plant found to contain dose and time dependent anthelmintic effects on live worms as well as egg hatching (Hussain et al., 2011).

• **Musa paradisiaca** L.: Leaves of the plant was extorted aligned with crude aqueous and methanol are investigated against sheep gastrointestinal nematodes via adult motility assay and egg hatch test, dose and time dependent anthelmintic effects were found on live worms as well as egg hatching (Hussain et al., 2011).

• **Cocos nucifera** L.: Fruit of this plant was extracted with ethyl acetate and tested on sheep nematodes by egg hatching and larval development tests. These extract were found to contain 100% efficacy on egg hatching and 99.77% on larval development (Oliveira et al., 2009).

• **Hedera helix** L.: Aqueous and hydro-alcoholic extracts of ripe fruits were investigated against eggs and adult nematode parasites with faecal egg count reduction, packed red cell volume and total worm count reduction. Hydro-alcoholic extract illustrated better *in vitro* activity aligned with adult parasites compared to the aqueous extract (Eguale et al., 2007).

• **Myrsine Africana**: Aqueous extract of leaves and fruits of the plant was checked with nematode parasite. The faecal nematode egg counts, packed red cell volume, live weight were identified and concluded that it is not efficacious against *H. contortus* in sheep (Githiori et al., 2002).

• **Rapanea melanophloeos**: Fruits and aqueous extracts were tested against nematode parasite and determined for faecal nematode egg counts, packed red
cell volume, live weight and found that no efficacious against *H. contortus* in sheep (Githiori *et al*., 2002).

- **Albizia schimperiana oliv**: Stem bark was extracted with crude aqueous and hydro-alcohol and tested with eggs and larvae of *Haemonchus contortus* species. Egg-hatching and larval development assay was conducted. The extract found to induce the complete inhibition of egg hatching at concentration less than or equal to 1 mg mL\(^{-1}\) (Eguale *et al*., 2011).

- **Leucas martinicensis**: Crude aqueous and hydro-alcoholic extracts of aerial parts of plant were tested against eggs and larvae of *Haemonchus contortus*. The extracts were initiate complete inhibition of egg hatching at concentration less than or equal to 1 mg mL\(^{-1}\) (Eguale *et al*., 2011).

- **Combretum molle**: Leaf and acetone extract, *Haemonchus contortus* ova and larvae, egg hatch and larval a development and viability assay *in vitro*, the extracts inhibited egg hatching and development of the larvae of *H. contortus* in a concentration-dependent manner (Ademola and Eloff, 2010).

- **Bracea javanica**: Dried fruits of the plant with methanol were extracted and tested against *Dactylogyrus Intermedius* (Monogena) in goldfish, Bruceine A and D found to exhibit significant activity against *D. intermedius* than the positive control mebendazole (Wang *et al*., 2011).

- **Carica papaya L**: Papaya latex was checked adjacent to *Heligmosomoides polygyrus* infections in mice. The papaya latex showed an antiparasitic efficacy (Satrija *et al*., 1995).

- **Coriandrum sativum**: Crude aqueous and hydro-alcoholic extracts of the seeds were tartan against egg and adult nematode parasite. Faecal egg count reduction and Total Worm Count Reduction parameters were checked. Both the extracts
were found to inhibit the hatching of eggs completely at a concentration less than 0.5 mg mL\(^{-1}\) (Eguale et al., 2007).

- **Agave sisalana perr:** Aqueous extract from sisal waste was tested with gastrointestinal nematodes in goats and checked for Faecal Eggs Counts (FECs), co-procultures and post-mortem worm counts. It showed low efficacy for the parasitic stages and was moderately effective against eggs and free-living stages. Furthermore, the treatment was not toxic to the goats (Botura et al., 2011).

- **Khaya senegalensis:** Bark and ethanolic and aqueous extracts were experienced against gastrointestinal nematodes of sheep by a larval development assay. The activity of the extract is identified as concentration dependent in vivo (Ademola et al., 2004).

- **Paris polyphylla:** Rhizome was extracted with methanol and checked against *Dactylogyrus intermedius*, Dioscin and polyphyllin D exhibited significant activity against *D. intermedius* (Wang et al., 2010).

- **Ocimum sanctum:** Essential oil from the plant was studied in *Caenorhabditis elegans* model with microwell plate assay. The essential oil of *O. sanctum* and eugenol showed potent anthelmintic activity (Asha et al., 2001).

- **Ficus species:** Latex was tested in NIH mice naturally infected with *Syphacia obvelata*, *Aspiculuris tetraptera* and *Vampyrolepis nana*. The observed high acute toxicity with hemorrhagic enteritis, in addition to a weak anthelmintic efficacy, does not recommend the use of these lattices in traditional medicine (De Amorin et al., 1999).
- **Butea monosperma**: Seeds with methanol extract were deliberated in *Caenorhabditis elegans* by microwell plate assay. The methanol extract of *B. monosperma* seeds showed potent anthelmintic activity (Prashanth et al., 2001).

- **Artemisia brevifolia**: Crude aqueous and methanol extracts of whole plant were studied *in vitro* *Haemonchus contortus, in vivo* sheep naturally infected with mixed species of gastrointestinal nematodes. It was found that, although, *Artemisia brevifolia* whole plant possesses anthelmintic activity against nematodes, it is not comparable with levamisole at any of the doses tried in this study (Iqbal et al., 2004).

- **Pycnanthus angolensis**: Stem bark with chloroform and methanol extract were tested against *Eudrilus eugeniae* by Petridish method. The *Methanolic extract* of *P. angolensis* was found to be more active than its chloroform extract (Gbolade and Adeyemi, 2008).

- **Sphenocentrum jollyanum**: Ethanol extract of fruits and seeds was checked with *Eudrilus eugeniae* using Petri-dish method. Fruit ethanolic extract of *S. jollyanum* was found to be more potent than the seed extract (Gbolade and Adeyemi, 2008).

- **Ziziphus nummularia, Acacia nilotica**: Crude methanolic extract of bark for *Ziziphus nummularia* and Fruit for *Acacia nilotica* was studied adjacent to trichostrongylid nematodes of sheep by conducting adult motility assay, egg hatch test and the larval development assay. This reveal the dose and time-dependent anthelmintic effects (Bachaya et al., 2009).

- **Azadirachta indica**: Aqueous and methanol extract of seed part was checked with gastrointestinal nematodes of sheep and determined for faecal egg count reduction and larval counts from co-procultures. *Haemonchus*
contortus and Trichostrongylus species were found to be susceptible to the tested compound (Iqbal et al., 2010).

- *Artemisia absinthium*: Aqueous and ethanol extracts of aerial parts was verified with ovine nematodes. Worm motility inhibition and faecal egg count reduction assays were performed and concluded that ethanol extract to be more effective (Tariq et al., 2009)

- *Nauclea latifolia*: Crude aqueous extract of the stem and bark with ovine nematodes was assayed and illustrated for faecal egg count reduction. The extract identified to improve haemoglobin and leucocytosis values in worm-infected sheep (Onyeyili et al., 2001).

- *Zingiber officinale Roscoe*: Crude powder and crude aqueous extract of dried ginger, gastrointestinal nematodes of sheep, Eggs per Gram faeces, Both CP and CAE exhibited a dose and a time-dependent anthelmintic effect (Iqbal et al., 2006).