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Exploring the Medicinal Potential of *Cassia tora Lin.:* A Comprehensive Review of its Phytochemistry, Pharmacology, and Therapeutic Benefits.

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ABSTRACT :-

Cassia tora Linn., a small annual herb from the Caesalpiniaceae family, is widely recognized for its medicinal properties and is commonly used in traditional medicine across Asia and Africa. Known as a weed in many regions, it grows in tropical climates and is valued for its leaves, seeds, and roots. Phytochemically, C. Tora contains a variety of bioactive compounds, including anthraquinone glycosides, flavonoids, and naphtopyrone glucosides, which contribute to its therapeutic potential. The plant exhibits a broad range of pharmacological activities, including antimicrobial, anti-inflammatory, antioxidant, antidiabetic, hepatoprotective, and hypolipidemic effects. Its seeds and leaves have been specifically studied for their potential to treat conditions such as skin diseases, helminthiasis, liver disorders, and gastrointestinal issues. Various studies have demonstrated its effectiveness in reducing plasma glucose levels, managing cholesterol, and mitigating oxidative stress. Additionally, the plant shows promise in modulating immune responses and offering protection against mutagenic substances. Despite its traditional uses, ongoing research continues to explore the full therapeutic potential of Cassia tora. This review highlights the phytochemical composition, traditional uses, and diverse pharmacological activities of C. Tora, emphasizing its importance in modern herbal medicine and the need for further exploration into its therapeutic applications.

Keywords:- Cassia tora, medicinal plant, pharmacological activities, phytochemicals, traditional medicine, therapeutic potential.

1.Introduction:-

Natural medication, additionally called organic medication or phytomedicine, alludes to the utilization of plant parts, for example, seeds, berries, roots, leaves, bark or blossom for restorative and remedial purposes [1].Herbal meds are related with a few helpful encounters and practices of native frameworks of medication, which act as rules for the determination, planning and use of home grown detailing to accomplish restorative advantages [1.2]. The utilization of customary medication is expanding step by step in each country [2].The objective of "wellbeing for all can't be accomplished without conventional medication and has kept a customary medication program since 1978.According to ongoing reviews and studies, 15% to 40% purchasers have utilized home grown medication to fix numerous illnesses. In most recent 25 years in US, because of inflating cost of physician endorsed drugs, joined with an interest in reusing to normal or natural cures, has prompted an expansion being used of home grown medications [2.1].

Around 80% of individuals are subject to conventional prescriptions for their essential medical care needs as indicated by the World Wellbeing Association (WHO)[3]. India is basically having the fortune of such plants. Cassia tora is one of them and notable little yearly spice ordinarily known as a weed in Asian nations [3.1].Cassia tora Linn. (Caesalpiniaceae) is a little yearly, erect, bush like spice which fills in warm clammy soil all through the tropical pieces of Asian and African nations; with a level of 30 to 90 cm [4].It develops as a wild bush for the most part in the tropical districts and is considered of as a weed in many spots [4.1].leaves pinnately compound, rachis scored with a cone shaped organ between every one of the two most reduced sets of pamphlets, flyers three sets, deter elliptical [5]. membranous, base fairly angled, fundamental nerves 8-10 sets, blossoms yellow, sub sessile matches, in the axils of the leaves, the upper ones swarmed, stamen serven, great and three staminodes, natural products subtetragenous diagonally septate cases, 15-23 cm long, the stitches exceptionally wide, rhombohedral, 23-30 for every unit [5.1].These plants are utilized medicinally for their leaves and seeds. Ringworm, pruritis, leprosy, skin disease, hepatopathy, helminthiasis, flatulence, dyspepsia, intermittent fevers, constipation, ophthalmopathy, cough, bronchitis, cardiac disorders, hemorrhoids, antifungal, hypolipidemic, hepatoprotective, and hypotensive activities are all treated with the acrid, thermogenic, laxative depurative, liver tonic, antihelmintic, and cardiotonic properties [5.2].

The current endeavor of the survey article is upadated data on different parts of c.tora.The plant has use in Indian arrangement of assortment of purposes [6]. It features the few pharmacological, phytochemical exercises, and trial investigations of cassia Tora and their dynamic constituent purpose in various fields [6.1].

Fig.1.Cassia Tora

2.Botanical profile of Cassia Tora Plant:-

2.1.Occurrence And Botanical Distribution:-

Yearly spices or undershrub's, 1-2m high. Leaves compound, paripinnate pamphlets 3-sets, applaud elongated Blossoms dazzling yellow, for the most part two by two, axillary: Units long, slim, diagonally septate, 15-25cm long. Sens thombo hedral, green 25-30 in number [7]. The plant bears blossoms in the stormy season and organic products in the winter.It in viewed as a weed all through India climbing up to a height of Himachal Pradesh, Bihar and Orina, Bengal, Punjab, Rajasthan, on squander lands close by of Maharashtra, Karnataka and fields of Tamil Nadu [7.1].

3.Description Of Plant:-

3.1.Leaves:-

Primer phytochemical trial of leaf showed the presence of polyphenols which driven analysts gauge its cancer prevention agent and antiproliferative potential", Leaves chiefly contains, myricyl liquor, anthraquinone glycosides, d-manitol beta sitosterol, and Flavonoids. Emodin, tricontan-1-old, stigmasterol, B Stigmasterol-B-D-glucoside, freindlen, palmitic, stearic, succinic and d-tartaric acids uridine, quercitrin and isoquercitrin were additionally recognized in Cassia tora L. Leaves additionally contain Kaempferol-3-diglucoside [4].

3.2.Seeds:-

Seeds likewise contain anthraquinone glycoside, naptho-pyrone glycosides, cassiaside and rubrofuarin-6-beta-gentiobioside. Seeds likewise yield a greasy oil comprising of oleic, linolic, palmitic and lignoceric acids and sitosterol [8].

3.3. Fruit:-

A short legume, 7.5-11 cm long, 1.5 cm broad, oblong, obtuse, tipped with long style base, flat, thin, papery, undulately crimpled, pilose, pale brown [9].

3.4.Flower:-

Unpredictable, sexually open, dazzling yellow and huge (almost 5 cm Sporadic, sexually open, radiant yellow and enormous (almost 5 cm across), the pedicels glabrous and 2.5 cm long. The petals additionally number 5, are free, imbricate and. crisped along the edge, radiant yellow veined with orange), the pedicels glabrous and 2.5 cm long [9.1].

3.5.Root:-

Outer surface of root is dull brown, inward surface smooth with long crack. The principal root is twisted to a point of 30 close to the foot region [11].

4.Traditional uses:

Customarily seeds are utilized remotely and inside for a wide range of eyes infection. Arrangements are likewise given for liver objections and bubbles . They are likewise utilized in the Drug pieces for the transdermal application for forestalling coronary illness [10]. The seed absorbed water and are taken in spermatorrhoea. The seeds debris is applied with spread in butt-centric illness of children[10.1].The leaves, roots, and even the entire plant are used as a purgative and to cure helminthiasis, ulcers, and impetigo. This root is thought to be stomachic, bitter, and an antidote to snake bites [12].

5.Pytochemistry Profile of Cassia Tora Plant:-

Upadhyaya and Singh (1986) detached chrysoobtusin from Cassia tora. Additionally two amino acids Cyotine y-hydroxyarginine and aspartic corrosive are available in Cassia tora. Rasul et al. (1989) arranged Starter phytochemical screening of Bauhinia variegata Cassia fistula, Cassia tora and Tamarindus indica didn't uncover alkaloids and unbound anthraquinones while glycosides as well as flavonoids were available in every one of the four types of the family caesalpiniaceae. Heart glycosides were missing just in C tora and saponins were available just in T. Indica, R. Variegata and T. Indica were without bound anthraquinones while bound anthraquinones were available in C. Fistula and C. Tora [10].

Cassia tora fundamentally comprise of anthraquinone glycosides and flavonoids (Fig. 2). Three napthopyrone glucosides, cassiaside, rubrofusarin-6-O-B-D-gentiobioside and toralactone-9-O-B-D-gentiobioside confined from the BuOH-solvent concentrate of the seeds were utilized in vitro bioassay assessment in light of restraint of action on cutting edge glycation finished results (AGEs) formation [6].1, 3, 5-trihydroxy-6-7-dimethoxy-2-methyl anthraquinone and ß-sitosterol were detected in the roots. Chrysophanol, physcion, emodin, rubrofusarin, naptho-a-pyrone-toralactune, and chrysophonic acid-9-anthrone are all found in seeds. The leaves are abundant in uridine, quercitrin, iso-quercitrin 5–18, emodin, tricontan-1-ol, stigmasterol, B-sitosteral-B-D-glucoside, freindlen, palmitic, stearic, succinic, and d-tartaric acids. Leucopelargonodin and kaemferol are said to be present in the blooms [10].

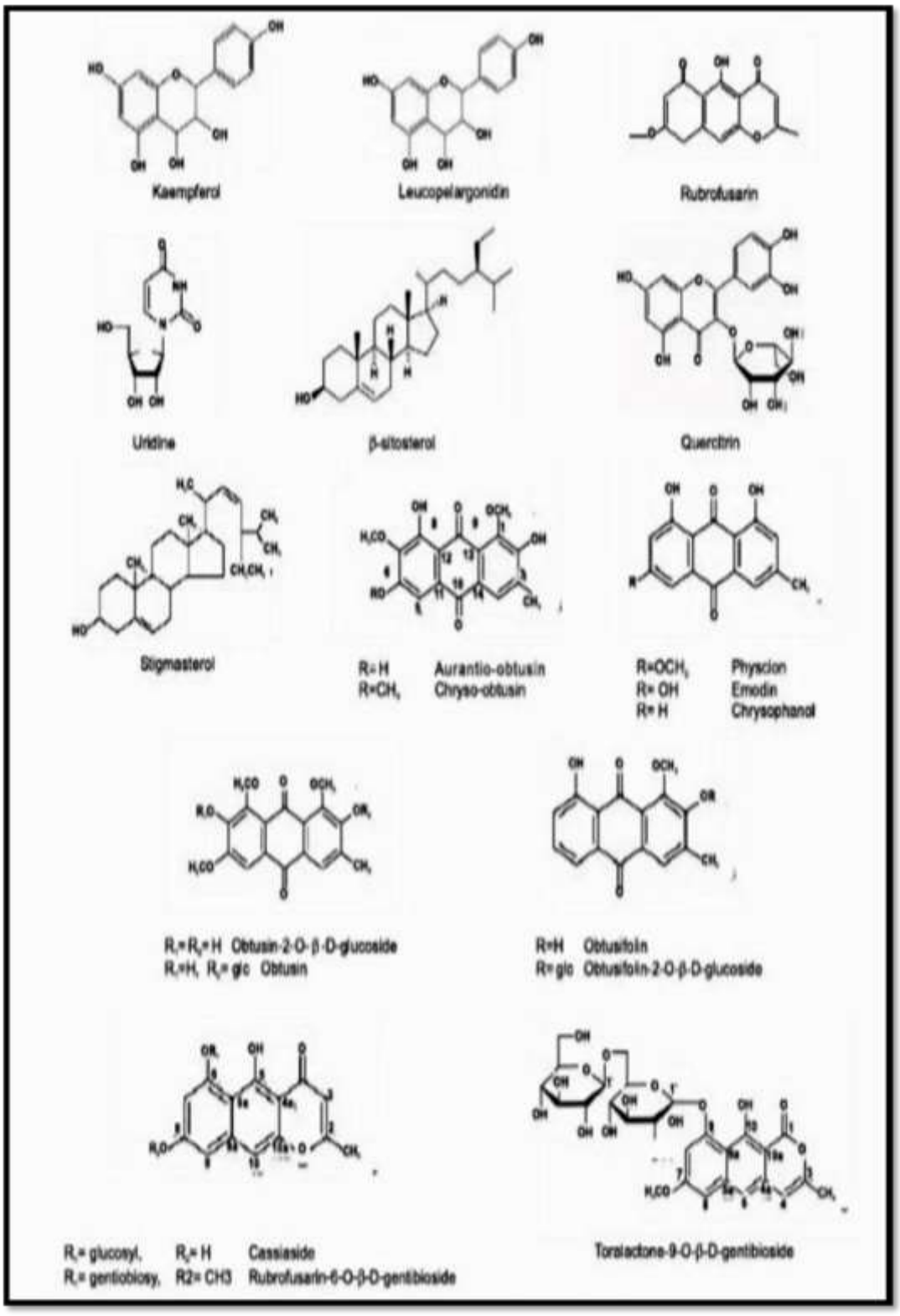

Fig.2. structure of phytochemicals in cassia tora Linn

6.Pharmacological Activity:-

The plant possesses diverse pharmacological activities. Several researches have been carried out to report pharmacological activities of Cassia tora in several in vivo and in vitro test models. They are enumerated as follows:

Antinutritional activity:-

The impact of various handling strategies the antinutritional factors viz oxalic corrosive phytate phosphorus and lammin content of the necessities was been attempted. The outcomes are demonstrated that oxalic corrosive substance fundamentally diminish in all handling techniques [11].

Anti-inflammatory activity:-

Methanolic concentrate of the C. Tora leaves was examined against carrageenin, receptor, serotonin and dextran initiated rodent rear paw oedema. It displayed huge mitigating movement against this multitude of specialists. The concentrate show greatest restraint of oedema with carrageenin, dextran, receptor and serotonin incited rodent paw oedema [12].

Antioxidant activity:-

In one review it was shown that Methanolic and watery concentrate of seed showed cancer prevention agent impact on peroxidation of linoleic corrosive. When contrasted and a-tocopherol, the Methanolic concentrate of seeds major areas of strength for showed impact yet more fragile than burylated hydroxyanisole [13].

Antidiabetic activity :-

In a study with streptozotocin induced diabetic rats , it was observed that C. Tora seeds lowered plasma glucose level and this lowering effect was as acute as seen even at the first week of feeding [14].

Antimutagenic activities:-

The antimutagenic activity of anthraquinone aglycones and naphthopyrone glycosides from methanolic extract of seeds against aflatoxin B, (AFB) was demonstrated with the Salmonella typhimurium assay [6].

Hypolipidemic activity:

Extract prepared in ethanol of seeds is found to possess the hypolipidemic activity and it satisfactorily reduced LDL cholesterol and Triglyceride level and increased the HDL level [3].

7.Conclusion:-

Cassia tora is the significant important plant for skin illnesses and different problems. According to USM, seeds are helpful in sickness, ringworm, pityriasis, vitiligo and melasma inside as well as remotely. Logical investigations additionally demonstrated some of USM claims and in addition these examinations likewise demonstrated that the seeds and leaves of this plant might be utilized for hypolipidemic action, hypoglycemic action, anthelmintic movement, antimutagenic action, antifungal action, hepatoprotective action, laxative action, mitigating action, cell reinforcement action and antimicrobial action.

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