

Opium: The Narcotic Herbs

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ABSTRACT: Opium is a derivative of opium Poppy & the species of plant which it's expect is used for preparing opium. opium derivatives have been shown as efficacious for relieving Pain & the treatment of epileptic seizures, but progassive research for toward their use in the treatment of neurodegenerative diseases remain elusive. The flows of the Plant is smoked by asthmatics. Belladonna is a powerful drug & a valuable antidote to Poisoning by opium, muscasine etc. The symptoms of the opium are nausea slowed breathing, Constipation, confusion, dry mouth and lining of nose, anxiety, depression, vomiting, insomnia itching, etc. opium affects the many internal organs like brain Respiratory system, central nervous system gastrointestinal system immune System liver. These drugs quickly affected health like psychological effects, Physical effects & mentally effects or ony thes diseases. These drugs can block the transport of the neurotransmitters. This is well known important medicinal plant widely used in several indigenous systems of medicine with various therapeutic benefits viz.

KEY WORDS: *Opium, Analgesic, Papaver Somniferum.*

INTRODUCTION:

It comes below depressant or narcotic poisons as a result of its wont to reduce pain & induce sleep. (1) Narcotic is that the dried latex obtained from the poppy. Narcotic latex contains morphia, codeine, thebaine, papaverine, a ripe & dry flower capsules contain solely trace of narcotic & square measure used for his or her sedative and narcotic result. The slit seedpods exude a whitish latex that coagulates and changes color, turning into gum like brown mass upon exposure to air and noscapine (2) The ripe & dry flower capsules contain solely trace of narcotic & square measure used for his or her sedative and narcotic result. The slit seedpodsexude a whitish latex that coagulates and changes color, turning into gum like brown mass upon exposure to air. (1) Uttar Pradesh, Madhya Pradesh, and Rajasthan. Since the Mughals introduced the poppy through British rules, strict governmental management has been exercised in Republic of India. nobody will grow even a plant of poppy while not a correct license issued by the Central Bureau of Narcotics (CBN), Govt. of India. (3) The role of natural product as each historical and continued sources of medicine, similarly as sources of precursors for unreal modification and sources of probes for however undiscovered drug moieties, is stressed. (4) So poppy aids joined of the foremost vital renewable reserve for pharmaceutical alkaloids. According to the UNO World Drug Report 2006, Asian country alone produces eighty nine of the world's illicit narcotic and Iran is one in all chief route of narcotic transportation (5) The challenge of this paper is borne out the actual fact that the connexion of Marx to up to date African nation has not been sufficiently explored in educational literatures. (6) In youngsters, AC is typically because of microorganism in- fections, vaccination, lead intoxication, trauma and neu- roimmunologic disorders (3). Severe type of AC is incredibly rare in youngsters and this sudden cerebellitis will cause death (7) flower juice was extracted and consumed by the Assyrians, Babylonians, and Egyptians within the Middle East, and by the Greeks within the west. Poppy had a very important role within the economy of Anatolian language and geographic region civilizations, each in terms of its medical and non-secular use. (8)



Fig.1 Opium

HISTORY:

The Sumerian culture flourished between the Tigris and river Rivers in southern Iraq from 4000- 3000 B.C., and therefore the initial mention of the poppy is found on Sumerian clay tablets inscribed in Cuneiform script in regarding 3000 B.C... (4) The gathering of narcotic has been active since around 3400 BCE. (1st century) and anatomist (129-199) have said the narcotic analgesic properties of narcotic. And it absolutely was Paracelsus (1493-1541) a Swiss German intellectual World Health Organization discovered that bound analgesic narcotic alkaloids area unit much more soluble in alcohol than in water that LED to tinctura tincture of opium,

giving straightforward healthful delivery (2) the supply of narcotic and narcotic alkaloids is one among the foremost ancient plants well-known to mortals. Sumerians' healthful, food, and narcotic properties were well-known to 4000 B.C. and Greeks by 1400-350 B.C. (Husain and Sharma, 1983) (8). The poppy was cultivated in Rome throughout the six century B.C. and in Egypt throughout Arab rules within the 700 AD; whereas in Asian country, its cultivation was established by the sixteenth century B.C. (Husain and Sharma, 1983) (3)

TAXONOMY OF OPIUM:

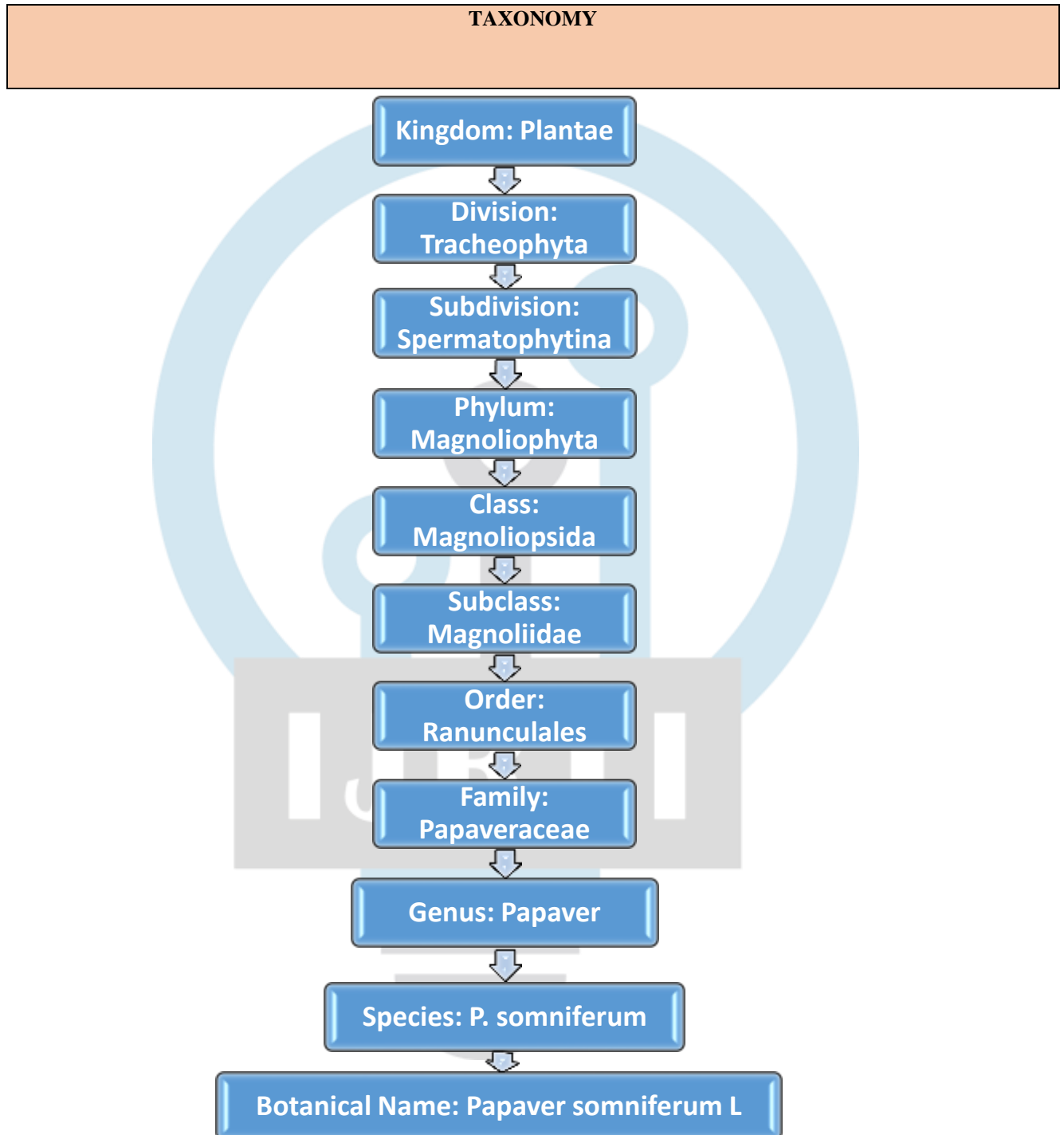


Fig No 1: Taxonomy of Opium

PHARMACOLOGY:

The presence of opioid receptor binding sites in the brain was demonstrated in 1973 via the use of radioligand (radiolabeled opioid compounds) binding assays in which saturable binding of radioligands was observed. Endogenous opioids are peptides found in mammalian tissue, with three distinct families of classical endogenous opioid peptides having been characterized. Morphine is used therapeutically in the relief of moderate to severe acute and chronic pain, as well as both preoperatively and intraoperatively in various anesthesia protocols.(4) One mainly significant dispute for opioid pharmacotherapy anxieties the connection amid the drug

blood concentration besides the analgesic effect.(5)

EXTRACTION:

- 1) Opium-comes from the unripe capsules of opium poppy that is Associate in Nursing annual herb happiness to family Papaveraceae.
 - 2) Time of sowing- flower seeds is planted in early winters. The plant grows up to 1m in height; flowering happens in Apr, Capsules matures in Gregorian calendar month.
 - 3) Flowers square measure white, red or chromatic, reckoning on selection.
 - 4) Capsules -One plant bears 5-8 capsules. Capsules ripen to concerning 4cm in diameter on ripening, their color changes from bluish-green to yellow.
 - 5) Extraction of opium-The color amendment from bluish- inexperienced to yellow signals the optimum time for latex assortment. whereas the capsules square measure still hooked up to the plant, terribly shallow incisions square measure created into their wall (lancing)with a special nushtar having 3 or fourtiny blades, separated by areas concerning 3mm.
 - 6) Flower tears- The latex that collects on the capsule walls is understood as flower tears. On evaporation, it becomes raw narcotic.
- (1)

STATISTICS:

The 2017 report of the United Nations Office of Drugs and Crime (UNODC) estimated the overall production of opium to be 6,380 tons worldwide with 30% increase compared to the previous year and they reported the number of illicit users to be up to 17.7 million in 2015 (10)

PHARMACODYNAMICS:

Pharmacodynamics is that the branch of medical specialty that studies the mechanisms of the action of medicine and their organic chemistry and physiological effects [16]. It's usually mentioned because the branch of medical specialty that studies the results of the drug on the body [16]. Most medication exert their effects via interactions with tissue receptors to that they're sure, and hence, trigger a series of organic chemistry and physiological cellular events that culminate during a response characteristic of the drug in question.

PHARMACOKINETICS:

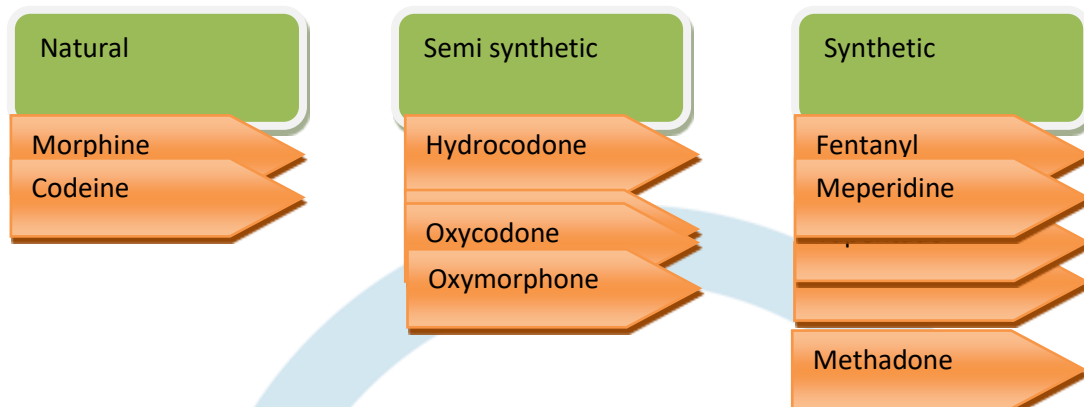
a. Administration: as a result of important first-pass metabolism of opiate happens within the liver, contractile organ, connective tissue, and IV injections turn out the foremost reliable responses. Absorption of opiate from the alimentary tract once oral absorption is slow and erratic. Once used orally, opiate is usually administered in AN extended-release kind to supply additional consistent plasma levels. It's vital to notice that opiate encompasses a linear pharmacokinetic profile that enables dosing to be additional certain and additional versatile.

b. Distribution: opiate apace enters all body tissues, as well as the fetuses of pregnant girls. It mustn't be used for physiological condition throughout labor. Infants born to inveterate mothers show physical dependence on opioids and exhibit withdrawal symptoms if opioids aren't administered. Solely alittle per-centage of opiate crosses the blood-brain barrier, as a result of opiate is that the least oleophilic of the common opioids. In distinction, the additional lipid-soluble opioids, like opiate and synthetic heroin, without delay penetrate into the central nervous system.

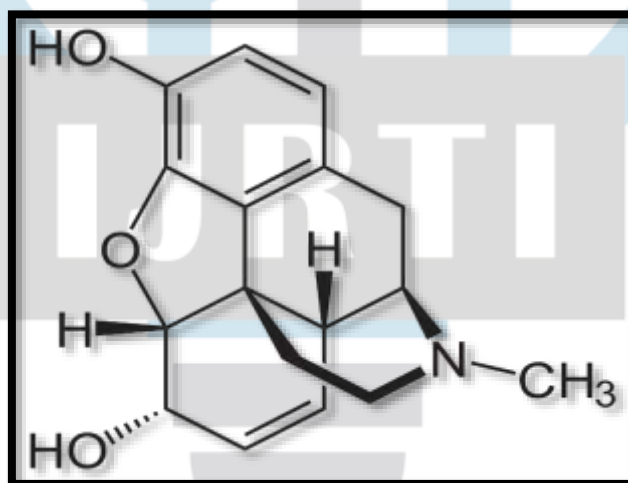
c. Fate: opiate is conjugated with glucuronic acid within the liver to 2 main metabolites. Morphine-6-glucuronide may be a terribly potent analgesic, whereas morphine-3-glucuronide doesn't have analgesic activity, however is believed to cause the neuroexcitatory effects seen with high doses of opiate. The conjugates area unit excreted primarily in water, with tiny quantities showing in gall. The period of action of opiate is four to five hours once administered systemically to morphine-naïve people, however significantly longer once injected epidurally as a result of the low lipophilicity prevents distribution from the epidural area due to their low conjugating capability.

d. Tolerance and physical dependence: perennial use produces tolerance to the metabolism depressant, analgesic, euphoric, and sedative effects of opiate. However, tolerance typically doesn't develop to the pupil-constricting and costive effects of the drug. Physical and psychological dependence will occur with opiate and with a number of the opposite agonists. Withdrawal produces a series of involuntary, motor, and psychological responses that incapacitate the individual and cause serious symptoms, though it's rare that the consequences cause death.

e. Drug interactions: Drug interactions with opiate area unit rare, though the depressant actions of opiate area unit increased by phenothiazines, MAO inhibitors (MAOIs), and tricyclic antidepressant (16)

CLASSIFICATION OF DRUGS:**Fig No 3:** Classification of Opium (19)**OPIUM AND IT DERIVATIVE:****1. Morphine:**

Morphine, that is that the main and sedative-hypnotic drug constituent of narcotic, conferred multiple demand in last 2 periods.(4) Morphine can even have an effect on the repair of polymer injury caused by ultraviolet radiation ultraviolet illumination actinic radiation actinic ray} light (Madden and Falek, 1991). Morphine-induced polymer fragmentation has been related to necrobiosis in murine thymocytes in vivo (Fuchs and Pruett, 1993). Each narcotic and hormone receptors area unit concerned in morphine-induced necrobiosis. Recently, it's been reported that administration of morphiin torats multiplied the ethylation of passage polymer by N- nitrosodiethylamine (12)

**Fig No 4:** Structure of morphine (20)**2. Noscapine:**

Molecular formula- C₂₂H₂₃NO₇

Noscapine may be a drug with very little toxic and sensible patience, as severe and long toxicity studies in animals displays a large boundary of protection for noscapine(4)

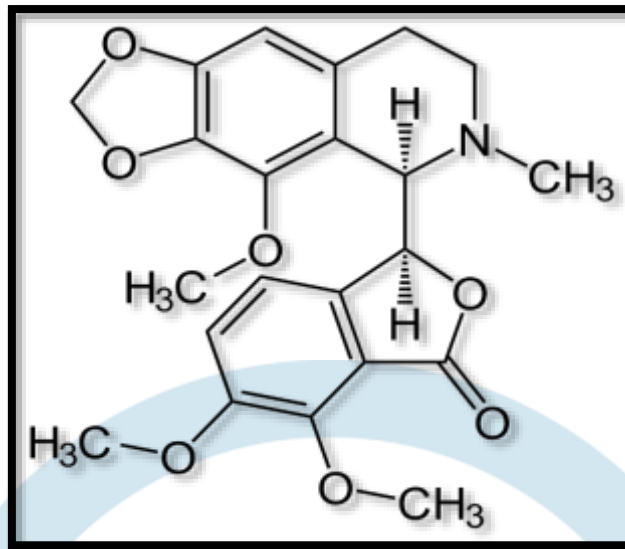


Fig No 5: Structure of Noscapine (21)

3. Codeine:

Molecular formula - C₁₇H₂₁NO₄

Is a powerful addictive drug that will increase the alertness and energy Thousands of years ago it created by South America from leaves of coca plant, that is additionally called a "coke".it's the looks of a fine white crystalline powderx it's a most harmful drug and thought of aswith in the style of increase the energy and application.(13) pain pill phosphate may be a pathetic opioid analgesic, that is mostly offered in Australia in combine with different non-opioid analgesics like pain pill, isobutylphenyl propionic acid and paracetamol for the cure of delicate to temperate pain. (3)

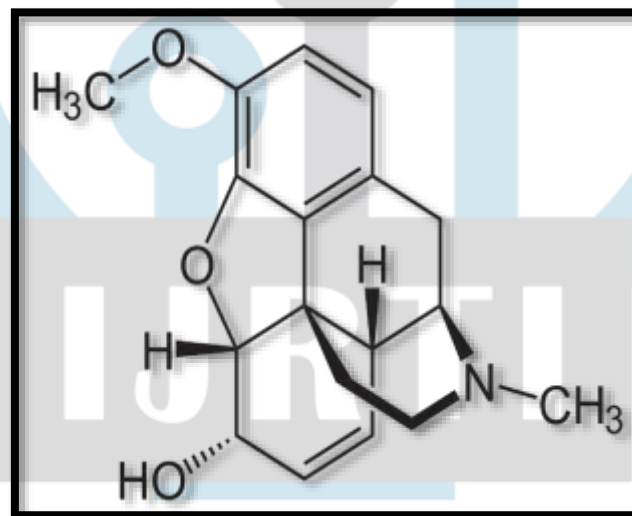


Fig No 6: Structure of Codeine (22)

4. Papaverine:

Molecular formula- C₂₀H₂₂CINO₄

This drug is completely engrossed from the channel in soul, and is absorbed preponderantly in insignificant the liver, with quantities defecated unaffected within the urine (3)

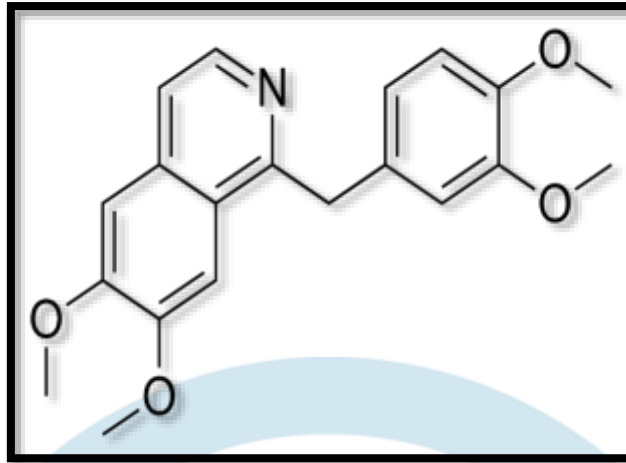


Fig No 7: Structure of Papaverine (23)

5. Heroin:

Molecular formula - $C_{21}H_{23}NO_5$

Heroin may be a white powder or Associate in nursing adhesive black "tar" with a bitter flavor and harmful for its delighted effects. because of its white color it's conjointly called a sugar. it's a most addictive drug that is obtained from morphia organic compound.(13)

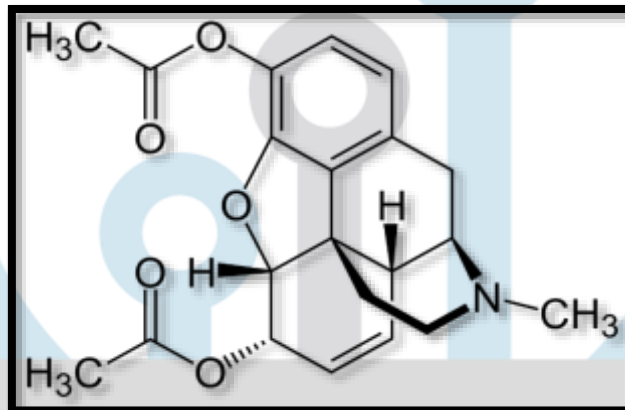


Fig No 8: Structure of Heroin (24)

6. Nicotine:

Molecular formula - $C_{10}H_{14}N_2$

It is a most addictive drug that found in tobacco plant. It's essentially taken by eupneic the smoke of tobacco cigarettes, through nose as a powder or orally. It generates charming fondness within the body and a mind. (13)

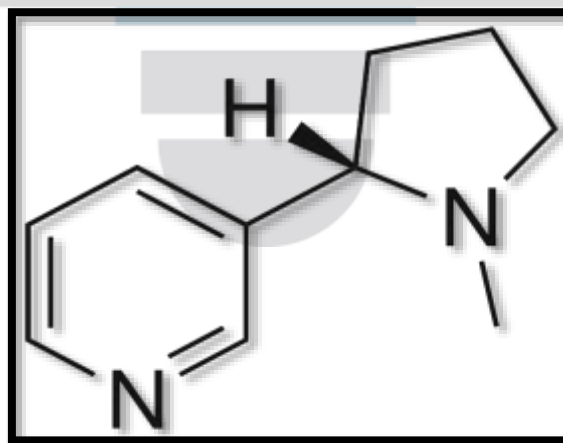


Fig No 9: Structure of Nicotine (25)

7. Endotoxin:

Molecular Formula: C₂₁H₃₇N₈O₁₂P₆

The inflammation results in the activation of glia that successively produces pro-inflammatory cytokines and toxin factors, like TNF-2a, NO, IL-10, superoxide, and free radicals, that afterward Mediates dopaminergic neurodegeneration. (2)

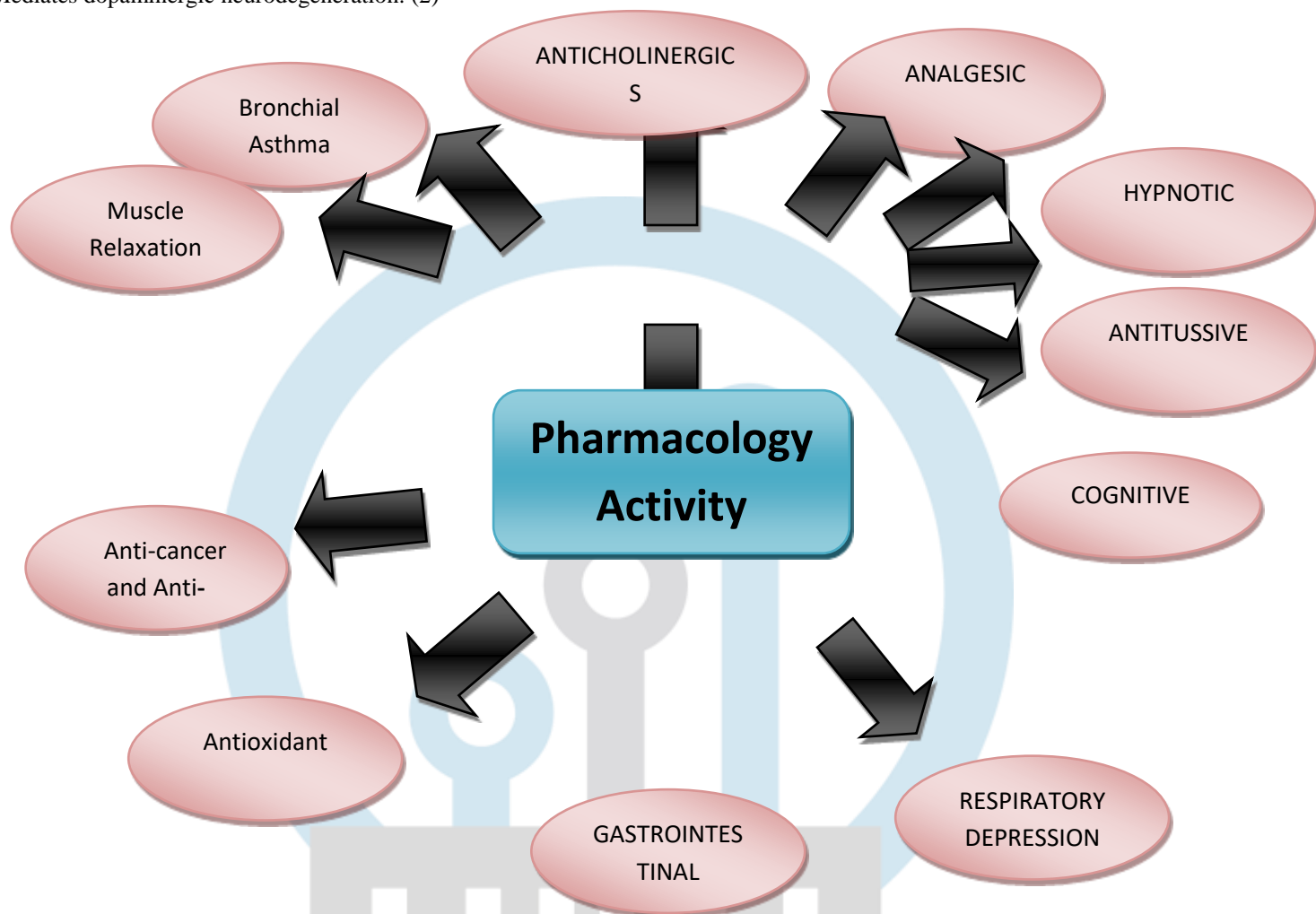


Fig No 10: Pharmacology Activity

PHARMACOLOGY ACTIVITY:

1. Anticholinergics:

Cholinergic actions on smooth muscle cause cartilaginous tube muscles to constrict; asthmatics square measure sensitive that develops spasm, dyspnea, associated precipitation of an attack of respiratory disease. Standard terms of anticholinergic medication square measure restricted to those that block actions of Ach on involuntary effectors and within the central nervous system exerted through muscarinic receptors.(14)

2. Analgesic:

Avicenna mentioned the analgesic result of narcotic as one therapeutic agent or as a constituent of different mixed flavorer applications to treat varied conditions like headache, arthralgia, otalgia, toothache, labor, urinary organ and bladder pain.(8) there's vital proof that flower was used as associate analgesic since 3000 BC, despite this previous usage of the flower as a pain pill, it had been not previous 1905 once German somebody Setuner isolated the most causative issue towards this analgesic property of flower as organic compound anodyne (15)

3. Hypnotic:

Avicenna counseled the employment of narcotic in tiny doses and in combination with different agents to treat sleep disorder as a result of he believed that long use of narcotic would cause sleep disturbance.(8)

4. Cognitive:

Opioid abuse will result in acute or chronic psychological feature disturbance. It that physician was aware of these effects (8)

5. Antitussive:

Narcotics (such as codeine) have wide been used as antitussives. It's believed that their antitussive effects square measure primarily associated with the folks and K-opioid receptors within the central nervous system (8). Analgesic is additionally associate narcotic organic compound that's obtained from part dried unripe latex of the poppy. Narcotic contains concerning zero.2-0.3% of the analgesic that acts as associate medicinal drug agent and helps in suppressing coughing (15)

6. Respiratory Depression:

Respiratory suppression was thought of a facet result of topical opioid application on the chest in patients affected by fever related to T.B.. (8)

7. Gastrointestinal:

Avicenna believed that narcotic caused constipation and counseled narcotic to treat severe diarrhoea. The costive result of opiates has been confirmed by recent analysis. (8)

8. Antioxidant:

In a study, it had been found that flower contains biologically active compounds like flavonoid glycosides, phenols and resins, that possess tidy inhibitor, antimicrobial, anti-inflammatory drug and anthelmintic properties and it had been steered within the study that flower will be utilized in the treatment of infectious diseases caused by varied microbes (15)

9. Anti-cancer and Anti-tumor:

In a study, noscapine potentiated the malignant {tumor| malignant neoplasm| metastatic tumor} activity of antibiotic drug synergistically against Triple-Negative carcinoma (TNBC) tumors as noscapine showed a dose-dependent reduction within the tumor volumes at a dose of 150–550 mg/kg/day compared to controls (15)

10. Muscle Relaxation:

Muscle relaxant is employed to produce relief from muscle pain and smoothen the blood vessels, ureters and canal. Anodyne imparts its result on the central systema nervosum to smoothen the muscles.(15)

11. Bronchial Asthma:

Airway hyperresponsiveness is a crucial feature of asthma, this is an exaggerated bronchio constrictor response, usually to different stimuli. There are a variety of mechanisms leading to airway hyperresponsiveness!", which may be relieved spontaneously or by therapy Present therapies in asthma the insufficiency of adequate needs, due to adverse effects hence patients are seeking complementary and alternative medicine to treat their asthma Siddha and other Indian literature mention the use of plants in various human ailments .(14)

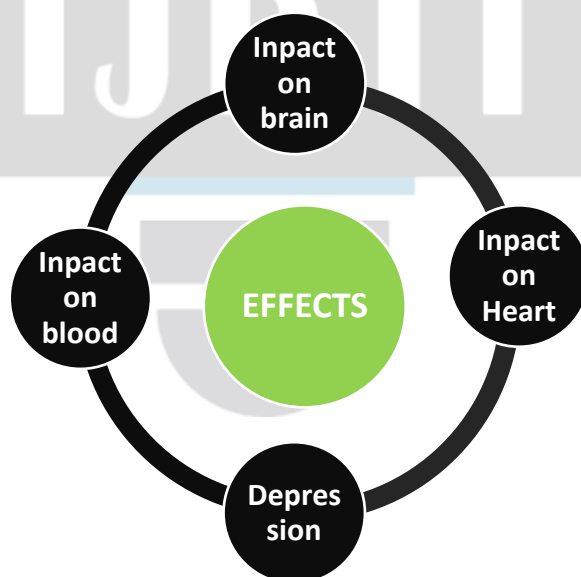
EFFECT OF DRUG ON DIFFERENT BODY PARTS:

Fig No 11: Effect of Drug on Different Body Parts (13)

1. Impact on blood:

Cocaine rapidly enters the bloodstreams and penetrates the brain. It affects red blood cells (RBC) and changes the rheological behavior of blood. It reduced the blood flow to the stomach and intestines, due to which it directly effects on digestive system (13)

2. Impact on Brain:

If someone is taking it regularly it can damage mind cells. It increase the amount of dopamine to brain which naturally occurs on brain small doses of dopamine stretch the mind cells to mean delight. When Dopamine abundance brain cells, then it doesn't have anywhere else to move. This excess dopamine blocks brain cells from speaking with one another.(13)

3. Impact on Heart:

Cocaine impact the cardiovascular gadget via to leading pathways: increased sympathetic output and aesthetic impact. It will increase coronary heart rate, blood strain and myocardial contractility. Coronary vasoconstriction and more favourable thrombosis limit myocardial oxygen delivery. Myocardial oxygen demand exceeds supply, resulting in ischemia or infarction.(13)

4. Depression:

The causes of cocaine and depression have this relationship has to do with how the mind works. As stimulants, cocaine turns on the sympathetic anxious gadget, which governs the combat-or-flight response.(13)

5. Health hazards:

Opium and opiates are mixed blessings. They are used as a medicine against cough and diarrhea reduce pain and induce sleep. But in large quantities, they are dangerous, but they also develop drug dependence. Including restlessness, irritability, shivering, muscular tremors or convulsions, headache, sneezing and crying, flushing of the skin (cold turkey), chills, mydriasis, insomnia, abdominal cramps, dilated pupils, excessive sweating, derilium, loss of appetite, vomiting, diarrhoea (leading to dehydration and weight loss). And finally a sense of desperation and an obsessing desire to secure a 'fix' either by theft or crime.(3)

CLASSES OF DRUGS:

Table No 1: Classes of drugs (13)

Classes	Included drugs	Risk
Schedule 1	Heroin, Ecstasy, Psilocybin, GHB(Gama-Hydroxybutyric Acid) Except Xyrem, to Lysergic Acid Diethylamide, Quaalude, Cathenone, Cannabis, Peyote	It can situate the individual at an excessive hazard for growing a body to operate irregularity
Schedule 2	Cocaine, Vicodin, Methadone, Adderall, Retalin, Hydromorphone, Dexedirine And Oxycodone	It cause a high risk of physically and mentally weakness
Schedule 3	Tylenol with codeine, suboxone, ketamine, anabolic steroids and testosterone	The power for misuse of schedule 3 drug therapy is lower medium in classification of schedule 3 drug. It causes lower or moderate risk of physically and mentally health
Schedule 4	Xanax, trizolam, ativan, Soma,darvocet, valium, klonopin, restril and ambient	It is very harmful and totally prohibit of its manufacture It use only for pain control They have affects a lower physically and mentally health
Schedule 5	Robitussin AC, lomotil, with codeine, lyrica, prepectolin, czugabine and motofen	Their level is lower than schedule 4 drug accommodates a finite number of opiates. They are basically manipulated for antidiactical painkiller tablet

Table no 2 : Origin of opioids: natural, semisynthetic ,or synthetic. (19)

Phenanthrenes	Action on Opioid Receptors
Morphine	Agonist
Codeine	Agonist
Oxymorphone	Agonist
Oxymorphone	Agonist
Hydromorphone	Agonist

Hydrocodone	Agonist
Buprenorphine	Partial agonist
Nalbuphine	Mixed Agonist/Antagonist
Butorphanol	Mixed Agonist/Antagonist
Benzmorphin	
Pentazocine	Mixed Agonist/Antagonist
Phenylpiperidines	
Fentanyl	Agonist
Alfentanil	Agonist
Sufentanil	Agonist
Meperidine	Agonist
Diphenylheptane	
Methadone	Agonist

USES:

Opium belongs to the category of hypnotic sedative and analgesic in which the action is mainly due to morphine. Morphine is a potent analgesic. Due to its central narcotic effects, it causes addiction. Hence, it is given only in severe pains and in those cases, when patient does not show response to other analgesics. Morphine has a biphasic action on central nervous system, it sedates the cerebrum and has a mixture of stimulation and sedation on the medulla. In the medulla, it sedates the respiratory center, emetic center and the cough reflex. It also stimulates chemoreceptor trigger zone in the medulla, which leads to nausea and vomiting and is considered as a side effect. Morphine also produces respiratory depression and constipation. (9)

CONCLUSION:

From the above information it is concluded that, the history of opioid consumption dates back to antiquity. But it seems that the knowledge about the drug improved during the Islamic Golden Age, as did other aspects of medicine. Back then, it was the largest and most comprehensive reference book covering all aspects of opioids, including details on botany, cultivation, therapeutic use, side effects, addiction, and treatment of addiction. Thus all of the herbs possess effective anticholinergic i.e. antimuscarinic properties which cause bronchodilatation and reduce airway resistance, especially in asthma and COPD patients. He used different methods of administration which are now being rediscovered, such as the topical use of opioids. As we know that there is no pharmacological treatment for that addiction so it can be treated only by avoiding these drugs and some social supports and by developing willpower can help with these drugs.

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