

* Tannins

* Lay man's definition :- Whites ~~use~~ tan themselves by exposing themselves to sun for higher pigmentation of their skin esp during summer by beach sides. Tanning is also adopted by tan industries to convert skin and hides of animals to leather.

* The main property of tannins is their astringent property.

* Tannins are present in unripe fruits ~~and~~ and is responsible for the ^{dry} ~~dry~~ taste. They are produced by plants ^{and are used} for protection against predators and infection and also for growth.

* The dry taste is caused by the astringency of the tannins present in the unripe fruits.

* They mainly form



pptz with nitrogen-containing compounds
e.g. gelatin, alkaloids, proteins

* Do It At Home Test:

⇒ Take a fresh egg, break carefully, extract the egg white. (Albumin) protein

Take a tea bag (black tea) dip into water and after the water has extracted the contents take a little of it and add a bit of egg white. It can well take place b/w the nitrogen-containing compound (Albumin) and the soln of tannin (tea bag). A white ppt is observed.

Tannin is present and confirmed.
This proves the complexation b/w the two.
* The above statement basically means they react to form an insoluble complex (ppt).

* Tannins should normally have high molecular weight. A tannin with a low mw is known as a pseudotannin. fake.

* There are two

True tannins

High molecular weight tests to gall

Polyphenolic c

Converts hides
of animal skins, into

leather

* NOTE :- Both
containing c
contain an
the true ha

* True tannin

Hydrolysable

Condensed

* Pyrogallols

the names b

acids

* Trisubstituted benzene

basically a

There are two types of tannins:	
True tannins	Pseudo tannins
✓ High molecular weight Tests positive to Goldbeater's test	low molecular weight Test negative to Goldbeater's test
Polyphenolic compds	Phenolic compds
Converts hides and skins of animals into leather	DO NOT convert hides and skins of animals to leather
NOTE :- Both form ppts with nitrogen-containing compounds because they still contain an amount of tannin only that the true have more compds than the pseudo	
True tannins are divided into two:-	
Hydrolysable true tannins (Pyrogallols)	
Condensed ✓ ✓ (Catechol)	
Pyrogallols are easily hydrolysed hence the name by enzymes and mineral acids.	
Trioxobenzene carboxylic acids is basically a benzene ring	Shop Grillz

ring with 3 OH and one COOH attached to

W.

* They made up of polyphenolic compounds (acids).

* Pyrogallols give off \rightarrow Catechic acids

upon hydrolysis. Ellagotannins

* These acids are originally bound together by ester molecules of sugar; mostly glucose.

* Condensed tannins on the other hand

have no sugar molecule and are non-hydrolysable. Also known as proanthocyanidins.

* They rather polymerize to give off

Phlobaphens.

* Differences from Pyrogallols and Catechols:

* Pyrogallols
* Banks / Readily hydrolysed.

Pyrogallols

Catechols

* Made up of gallic acid

and ellagic acids etc.

* Breaks into molecules to yield acids by molecules instead of breaking ester molecules polymers to yield

of sugar breaking them.

* On dry distillation

On dry sublimation

Pyrogallols derivatives

Catechols derivatives are gotten.

* Upon skin with FeCl₃ blue black colour is given.

or black colour is brownish green.

observed

* Cinnchona bark red colour

* Cocoa seeds in cocoa.

* Tannin in black tea is condensed

* A plant note may contain both types

of tannins e.g. Hamamelis has both

ellagic and condensed

- * Standard test \Rightarrow Goldbeater test and only applicable to true tannins. Pseudo tannins do not give a positive result cos it has low mw.
- * Why do we have tea as astringent (dry taste) when we take unripe fruits?
- \Rightarrow The salvia contains proteins (proteins amylases etc) react with the tannins in the unripe fruit and forms insoluble complexes (aggs) which irritate and aggregate the mouth hence the dry taste.
- * Tea is used to differentiate tea.
- * Astringent \Rightarrow Constriction of mucous membrane to arrest bleeding (Intestinal and external).
- * Diarrhoea \Rightarrow to reduce water by its astringent (dry) property.
- * Calamine lotion contains tannins.

- * Antipoisoning /Antidote effect \Rightarrow Tannins reacts with the poisons (nitrogen - contain any complex) and forms insoluble complexes hence by precipitating the heavy metals and making the poisons irreversibly adsorbed by the body.
- * Mordant means a fixative to help set the dye on the fiber.
- * Tannins are present in unripe (red or green) hence the dry taste or feeling.
- * When asked to give the chemistry in cognition the structure is expected to be given.
- * Precursors means Derivatives.
- * Then local plants or foods containing tannins:
 - Camellia sinensis (Tea plant)
 - Vitis vinifera (Grape vine)
 - Sorghum bicolor (Sorghum)



✓ Nuss qnamah

Craeen varpe banana

✓ Manihot esculenta (Cassava leaves)

✓ Vigna subterranea (Bambara groundnut)

✓ Amaranthus viridis (Green amaranth)

✓ Salix alba (Willow bark)

✓ Syzygium aromaticum

✓ Cinnamomum verum (True cinnamon)

✓ Citrus limon (Lemon)

From note;

✓ Rhubarb ✓ Cloves ✓ Chestnut ✓ Rose

Petals ✓ Nut gall ✓ Hamamelis - Oak

bark ✓ Eucalyptus bark ✓ Pomegranate bark

✓ Wild cherry bark ✓ Acacia bark

✓ Cacao beans ✓ Kola seeds ✓ Areca seeds ✓ Guarana seeds ✓ Tea leaves

PGG 302 Mrs Adabasale

Natural Pesticides :-

etc. any living organism at all.

Two types of ways to eliminate pests

Natural means :- Use of a predator

that naturally eliminates the pest or

naturally preys on it but however

this means is not very effective

because the predator can as well destroy

the crops or substance, you trying

to protect from pests.

Every pest has its own predator

e.g. rat (pest) cat (predator).

Mechanical means :- By hand picking them

or by burning the affected area

Agricultural means :- By crop rotation, hybridization, mutation etc.

Chemical means :- Most common means



In contact with a liquid

* Examples of disintegrants

↳ Starch, Corn starch is internationally accepted). It can also be used as a binder

depending on the percentage.

* Several ways of administering tablets

* Orally means swallowing; it is different

from sublingually which is under the tongue.

* Examples of binders and disintegrants

* Examples of orally disintegrating tablets

↳ nifedipine, CTR, Cytomegalovirus

(nitrate), note the brand.

* Note the advantages and disadvantages

* Tablets must be with a range'

it must be hard enough to not break

up due to movement (like JTC) but

not be too hard that it won't break

downstage on the GIT.

* Powders u put in the tablet

while suppositories is inserted in the anus

* Wet granulation is used for powders that cant mix. It is more costly and less compact

* Dry granulation is used for powders that can mix and its a lot simpler and cheaper.

* Drugs like aspirin can only be granulated via dry because it is highly unstable in water.

Aspirin is also acetyl salicylic acid.

PCL 302

Dr Sanusi

* Central Nervous System Diseases

⇒ Antidepressants and major tranquilizers

Depression is a common condition (day to day) but can be temporary or permanent.

- * When it happens due to a situation like sadness, bad grade etc it is temporary and this is known as minor depression.
- * When it lingers for a long period of time (over 2 weeks) it becomes an ailment and this is major depression.
- * Different types of depression:
 - Paediatric - the one children experience
 - Post partum - after child birth. Called baby blues that mothers experience.
 - Seasonal - depends on weather; during rainy or dry seasons
- * Depression is a curable disease that requires support from the family of the patient and friends.
- * Causes of depression:
 - Neurotransmitter imbalance that act in the brain. Neurotransmitters are secreted by nerves and are produced for purpose

transport to another nerve forming a network.

* Note Hormones are just like neurotransmitters only that they are secreted by organs.

* When a nerve secretes a neurotransmitter and takes up the neurotransmitter back for usage its called "reuptake".

* Depression is caused when the neurotransmitter level is not balanced and the body fails to balance or correct this condition and it lingers beyond 2 weeks.

* How do you know a person is depressed

→ A person that has withdrawn or isolated, is being suicidal.

→ A person that also threatens other people.

- * Several therapies can be administered to treat depressions.
- * We have two types broadly-
 - Pharmacological means
 - Non pharmacological means.
- * Under non pharmacological means we have,
 - Psychotherapy:- help the patient socially, communicate frequently etc in order to get the root of the problem then solve the problem by counselling the patient. This therapy can be done individually (patient - doc) or in a group (group of depressed patients - doc where they all share their experiences to help each other), couple (depressed partner or spouse) etc.
 - Electro convulsive therapy :- This procedure is done under general anaesthesia, in which small electric currents are passed through the brain (inhibitionally triggering a brief seizure). ECTs are used to stimulate seizure (convulsions and after this sharply, the neurotransmitters level is balanced but it might require several sessions before effect is seen (Once, Twice, thrice or even up to 6 times)). It can involve the use of magnets on brain and it's usually the last step i.e. All other measures pharmacological and non pharmacological must have been taken. E.g. Paracetamol.
 - Stimulation is a type of ECT.
 - When other measures

For better results; it is usually administered along side pharmacological means for better efficacy.

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Stimulation is a type of ECT.

When other measures

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have been exhausted, and do not work if you adopt this method. It is very costly and a lot advanced.

* Pharmacological means :- The use of antidepressants or anti-depression drugs.

This has two classes :- These

→ Typical antidepressants :- These class involves drugs that are primarily used to treat depression. Main therapy used to treat depression is anti-depressants. It is important to note that depression caused by the reduction in the level of one or two neurotransmitters specifically in the brain.

⇒ The main objective of antidepressants is to elevate the level of neurotransmitters that are deficient in the brain and also ensure

there are not too high that they cause issues. The objectives is to balance the neurotransmitter level in the brain.

This class has several subclasses. - Therapeutic Selective Serotonin Reuptake Inhibitor (SSRI) -

The neurotransmitter in this case is serotonin. Side effects (SE) include nausea, insomnia (difficulty in sleep), sexual problems. Example is Zoloft (Sertraline generic).

✓ Serotonin - Norepinephrine Reuptake Inhibitor (SNRI) - The neurons transmitters here are serotonin and norepinephrine. Note epinephrine is known British while norepinephrine is American. Side effects include nausea, insomnia but no sexual problems. So it is better admin.

ed to males in their sexual active years than SSRIs.

✓ Tricyclic antidepressants (TCAs) - Side effects dry mouth etc. Examples are is

Note: Amitriptyline - This class of drugs

can also be officially used for the treatment of bed wetting or urinary incontinency (lack of ability to hold bladder) (or bladder control)

✓ Tetracyclic antidepressants - Also officially used to treat anxiety

✓ Dopamine antidepressant - Norepinephrine & dopamine are effect

transmitter & dopamine acts as a

confinement

✓ 5-hydroxy tryptophan 1 (5-HT1)

✓ 5-hydroxy tryptophan 2 (5-HT2)

✓ 5-hydroxy tryptophan 3 (5-HT3)

NOTE:- You should be able to give the various classes, their specific side effects and specific examples.

* Note Adrenergic affects libido so it shouldn't be administered to sexually active men.

* Typical antidepressants are specific and are mainly used to treat depression. Specific action they are used to elevate levels from specific neurotransmitters

keep level in the brain

* Goals can be achieved within a short period or a long period of time

* The specific mechanism of action of all antidepressants is to elevate the deficit neurotransmitters in the Central Nervous System in order to balance the activity or level of neurotransmitters.

Also note - All antidepressants are effective according to scientific research but their efficacy differs with individual patients. "Isosignancy". Some patients may require combinations of ~~other~~ or more antidepressants while some may not. Combos guarantee better efficacy too.

→ Atypical antidepressants : These drugs are not mainly used to treat depression. They have fewer main therapeutic uses but happen to also be used to treat depression.

Examples

✓ Monoamine Oxidase Inhibitor (MAOI) : This is not more so in use cos it has too many drug-drug interactions that can cause fatal problems in the patient - this is a major side effect.

✓ Selective Serotonin Reuptake Inhibitors (SSRIs)

✓ Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs)

✓ Tricyclic Antidepressants (TCAs)

✓ Tetracyclic Antidepressants (TCAs)

✓ Mirtazapine

✓ Bupropion

✓ Venlafaxine

✓ Reboxetine

✓ Clomipramine

✓ Amitriptyline

✓ Imipramine

✓ Nefazodone

✓ Clomipramine

✓ Sertraline

✓ Fluoxetine

✓ Paroxetine

✓ Venlafaxine

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✓ Hyponatremia Class of sodium

✓ Diabetes (Causing hypo 2)

or Enuresis means bed wetting

* When neurotransmitters are reduced

in the brain (Depression) pain can
be experienced. Diabetes patients also
suffer neuropathy (weakness, numbness,
and pain from nerve damage).

In the above cases, antidepressants
that can treat both depression and
pain is administered.

* Atypical uses of antidepressants:

- include : bed wetting, urinary incontinence,
pain, migraine, chronic vertigo
(nausea, pain, headache & dizziness), etc

* There are anti-depressants can be
administered for the above diseases
if all common treatments are futile.

g) Depression is hereditary -

Note 1 - The specific drugs each
class of anti-depressant interacts
with -