HERBAL TEA ANALYZES

Analyzes of an unknown sample is practiced in 4 steps:

1. Organoleptic control (colour, smell, taste, appearance)

2. Microskopic control (characteristic anatomical elements of the sample is determined)

3. Identification tests (Bioactive compound groups are determined bu specific reactions)

4. Chromatographic methods (Substances in bioactive compound groups which are detected by identification tests, are separated by chromatographic methods)

Identification Reactions in Herbal Tea Analyzes:

1. CARDIOACTIVE HETEROSIDES:

Sample+ 5 ml %70 EtOH....boil 2 min.....filter.....filtrate is diluted with 2 fold water.....+1ml conc Pb-subacetate.....filter.....filtrate+ 5 ml $CHCl_3$.....Extraction... ... ... $CHCl_3$ phase (bottom) is taken and put in 2 different capsules

$CHCl_3$ is evaporated (water bath). Residue is dissolved in 2 ml glacial acetic acid $FeCl_3$. Wait for 1 min. Layered with H_2SO_4 in test tube.

KELLER-KILIANI REACTION

Dark Brown colour on separation surface of layers (2-desoxyose)

Upper phase with CH_3COOH is pale green

$CHCl_3$ is evaporated (water bath). Residue is dissolved in 1 ml ethanol + Baljet reagent.

BALJET REACTION

Orange-red colour (Unsaturated lacton ring with 5 member)

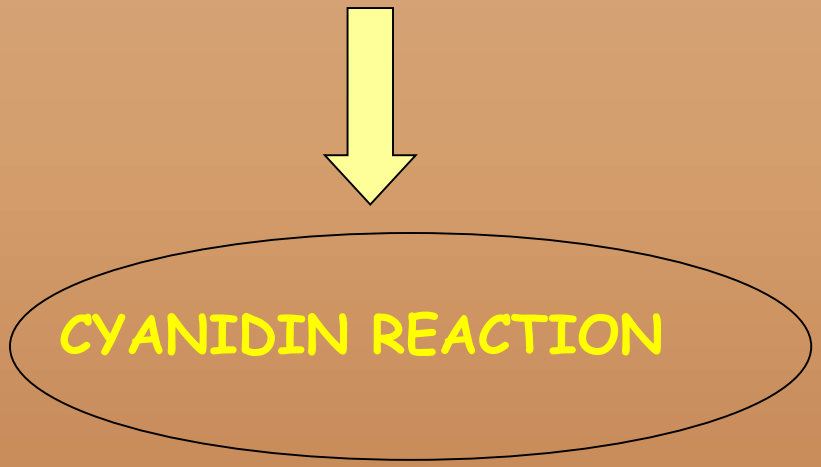
2. FLAVONOIDS

Sample + 10ml methanol.....heat, extraction by shaking.....filter.....filtrate + 1 ml conc HCl.....+1 spatula Mg powder....H_2 discharge..... Foam colour.....

Flavones.....ORANGE

Flavonols.....RED

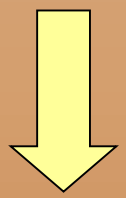
Flavonones.....PINK-PURPLE



3. ANTHRAQUİNONES:

Sample + 10 ml dil. H_2SO_4.....boil 5 min ..... Filter..... Filtrate is cooled.....extraction with benzene.... Benzene phase (upper) + extraction (by shaking) with % 10 NH_3..... NH_3 phase (bottom)→ Pink–Red ... After 5 min....RED COLOUR

BONTRAGER REACTION



(Reaction of free anthraquinones with alkali)

4. SAPONOZSIDES

Sample +15 ml dil H_2SO_4....extraction by heating ....Filter....Filtrate +15 ml $CHCl_3$ ..... Extraction ..... Chloroform phase (bottom) is partitioned in 3 different parts:

1. PART: Put in a tube ..... Layered with 1ml conc H_2SO_4, ... YELLOW-RED....SALKOWSKI REACTION (Spirostane ring)
2. PART: Evaporate....Residue is dissolved in 3 ml CH_3COOH anhydride ...layered with 1-2 drop conc H_2SO_4....BLUE-PURPLE ....LIEBERMAN-BURCHARD REACTION (Steroidal structure)

3. PART: Evaporate ..... Residue + Anisaldehyde-H_2SO_4 Reagent... PINK-PURPLE .....ANISALDEHYDE REACTION (Triterpen saponoside, all triterpenoids)

5. TANNINS

%5 infusion of sample is prepared by water:

1. **+Stiasny Reagent (Formalin+HCl)..... Precipitate (Catechic tannin)**

   → Dark blue precipitate, Gallic Tannin

2. **+$FeCl_3$ TS.....**

   → Dark green precipitate, Catechic Tannin

6. ALKALOIDS:

Sample + 10 ml %70 EtOH containing %6 H_2SO_4 .....boil 1 min .....cool and filter.....little part of the filtrate is controlled with DRAGENDORF and MAYER reagents separately..if..(+) .....continue...if... (-) .....end.

Remaining filtrate ..... Make alkali with %25 Na2CO3.....extraction with 15 ml CHCl3....Chloroform phase (bottom) + %10 CH3COOH.....CH3COOH phase (upper) is divided to 2 parts: