**Lab sheet #5**

**-Qualitative Analysis of Renal Calculi-**

**-Objectives:**

* Identification and qualitative analysis of kidney stones.

**-Method:**

**(1)Test for Uric acid:**

1-Put a small amount of the sample.

2-Add 5-7 drops of concentrated nitric acid (Carefully).

3- Heating in a water bath.

🡺(The positive result is yellow to orange color on the inner surface of the test tube).

**(2) Test for carbonate:**

1- Add 0.5 ml con. hydrochloric acid (2M HCL) to a small portion of the sample.

🡺 (Gas bubbles will indicate the presence of carbonate).

**(3) Test for oxalate:**

1- Heat a part of the sample with 2 ml dilutes sulphuric acid (2M H2SO4) for 1 min.

2-Add 2 drops (one by one) of, potassium permanganate (KMnO4) solution and Mix.

🡺(The decolonization and evolution of bubbles will confirm the presence of oxalate).

**(4)Test for phosphates:**

1- Dissolve a little of the sample in about 1.5 ml of concentrated nitric acid (HNO3).

2- Add an equal volume (1.5 ml) of ammonium molybdate solution.

3- Heat to boiling.

🡺(If phosphates are present, a yellow precipitate of ammonium phosphomolybdate is obtained).

**(5) Test for calcium:**

1- Dissolve small amount of the sample by heating with 2 ml dilute hydrochloric acid (2M HCL).

2- Add 1 ml ammonium oxalate.

🡺(A white precipitate of calcium oxalate shows the presence of calcium).

**(6) Test for magnesium:**

1- On a few amount of magnesium, add 1ml of titan followed by 1 ml potassium hydroxide –to be strongly alkaline-.

🡺(An orange to red color indicates the presence of magnesium).

**-Results:**

|  |  |  |
| --- | --- | --- |
|  | **Observation** | **Type of stone/s** |
| **Uric acid** |  |  |
| **Carbonate** |  |  |
| **Oxalate** |  |  |
| **Phosphates** |  |  |
| **Calcium** |  |  |
| **Magnesium** |  |  |