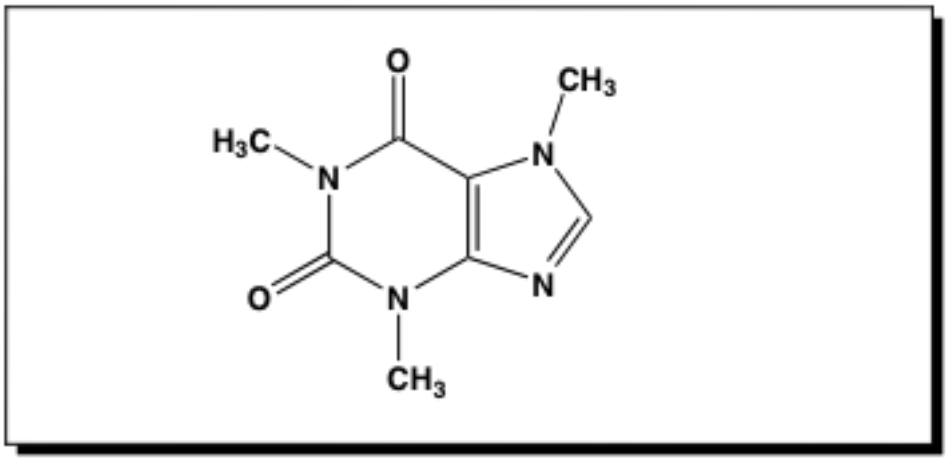
Exp. 6 Isolation of Caffeine form Tea



Techniques

Extraction, recrystallization

Equipment

Magnetic stirrer, vacuum filtration set up, rotavap

Chemicals

Sodium bicarbonate, sodium sulfate, dichloromethane, isopropanol, petrolether

Safety

Extraction with dichloromethane should be conducted under the hood

Procedure:

For 10 Tea-bags:

• Dissolve 20 g of sodium carbonate in 200 ml of water and fill it into the big flat beaker.

• Bring the solution to its boiling point, put ten of the tea bags into it and infuse them for ten minutes.

• Let it cool down for five minutes and continue cooling with ice-bath.

• Take the tea-bags off and press the remaining liquid out of them.

• Pour the liquid into a separatory funnel.

• Perform the extraction three times with 50 ml dichloromethane.

• Avoid too vigorous shaking, otherwise an emulsion is formed which is difficult to separate.

• Collect the extracts in an Erlenmeyer flask and dry it with some spatula- tips of sodium sulfate to get rid of water-traces.

• Filter the extract into a 250 ml round-bottom flask.

• Evaporate the solvent on the rotavap.

• Recrystallize the remaining solid from 5 ml isopropanol using the water bath.

• Vacuum filtrate the crystals formed.

• Wash it with some cold petrol ether.

• Let it dry on air, fill it into a vial and determine the weight

Tasks

1. Calculate the content in the tea used.
2. Determine the melting point