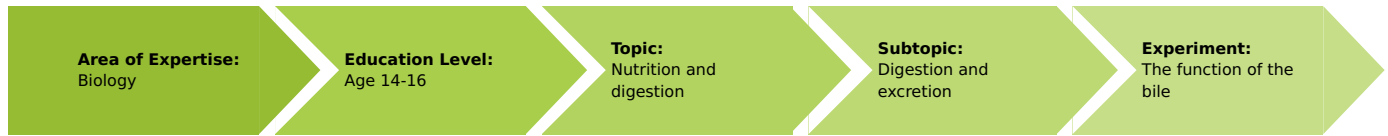


The function of the bile (Item No.: P8013000)

Curricular Relevance



Difficulty



Easy

Preparation Time



10 Minutes

Execution Time



10 Minutes

Recommended Group Size



2 Students

Additional Requirements:

Experiment Variations:

Keywords:

Digestion, Emulsifier, Emulsion

Task and equipment

Information for teachers

Additional Information

After the food in the mouth and stomach were pre-digested, they reach the intestine. In the small intestine the food pulp is first neutralized and mixed with bile and the secretion of the pancreas.

The bile is produced in the liver, concentrated and stored in the gallbladder, and then excreted in the duodenum, the first section of the small intestine. Through the bile, fats and oils are emulsified, so the contact surface for the enzymes is larger and digestion can occur faster.

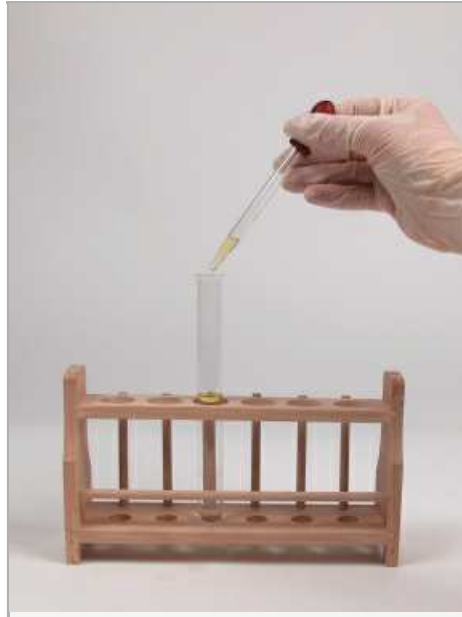
The function of the bile (Item No.: P8013000)

Task and equipment

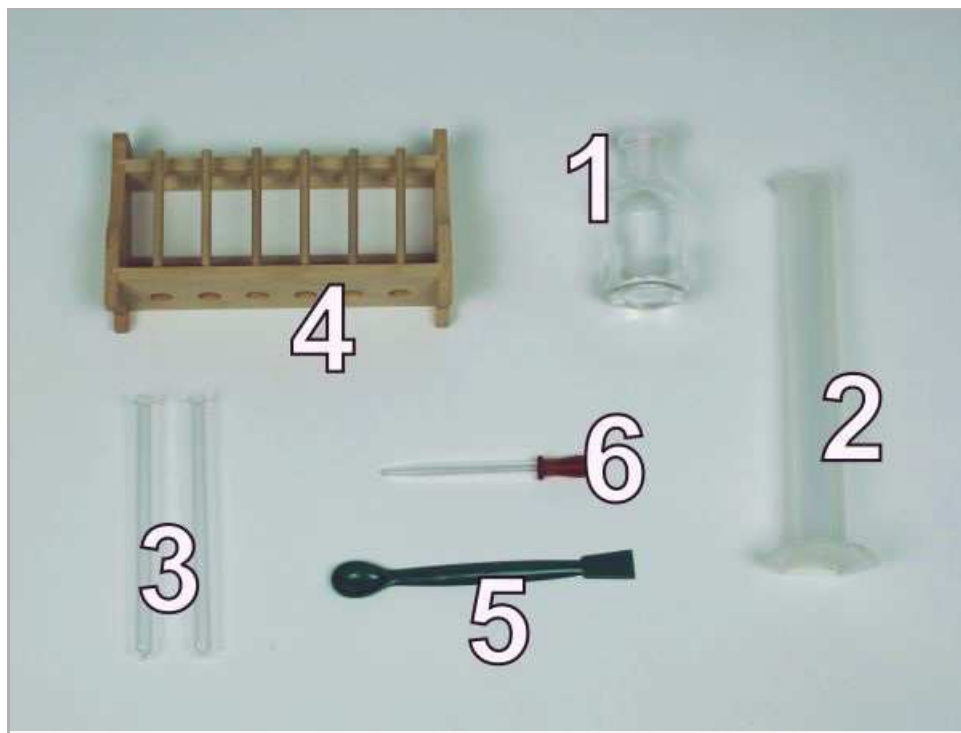
Task

What does bile do?

Examine the action of bile.



Equipment



Position No.	Material	Order No.	Quantity
1	Bottle,nar.mouth,100ml,clear,p.st	41101-01	1
2	Graduated cylinder 100 ml, PP transparent	36629-01	1
3	Test tube 160x16 mm, 10 pcs	37656-03	(2)
4	Test tube rack f. 6 tubes, wood	37685-10	1
5	Spoon,w.spatula end,18 cm,plastic	38833-00	1
6	Pipette with rubber bulb	64701-00	1
	Portable Balance, OHAUS JE120	48895-00	1
	Olive oil,pure 100 ml	30177-10	1
	Water, distilled 5 l	31246-81	1
	Ox gall, desiccated 100 g	31310-10	1

Set-up and procedure

First prepare the 40 % ox-bile solution by giving 8 g ox gall in a bottle and adding 12 ml (12 g) of distilled water. Shake the bottle with the solution until the ox gall has dissolved completely.



Fig. 1

Fill a test tube about half full with water and add 10 drops of olive oil. Hold your thumb over the mouth of the test tube, shake the test tube several times and place it in a test tube rack.

What happens? Write down your observations in the report.



Fig. 2



Fig. 3

Fill another test tube about a quarter full with water and add an equal amount of 40 % ox-bile solution and 10 drops of olive oil. Hold your thumb over the mouth of this test tube too, shake it a number of times and put it in the rack.

Note your observations in the report.



Report: The function of the bile

Result - Observations

Write down your observations.

How do the water and oil behave in the first tube when shaken? How do they behave in the second tube? What happens when the test tubes are put down into the rack?

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Evaluation - Question 1

What does bile do? What is the importance of this process for the digestion of oil (fat)?

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