

To Study the Effectiveness Of Different Common Oils (Castor Oil, Cotton Seed Oil, Coconut Oil, Kerosene Oil, Mustard Oil) In Forming Emulsions

Theory

Depending upon the physical properties and the chemical composition of the oil, some oils form emulsions readily with water whereas many others form with great difficulty.

Apparatus

Five stoppered bottles or boiling tubes, measuring cylinder, stop-watch or simple watch, 5 ml pipettes.

Materials Required

Castor oil, cotton seed oil, coconut oil, kerosene oil, mustard oil and 1% soap solution or sodium oleate solution. (1 gm dissolved in 100 ml of distilled water).

Procedure

1. Take five stoppered bottles and wash them with water. Label them as A, B, C, D and E.
2. Take 5 ml of each of the oils separately in tubes A, B, C, D and E.
3. Add 50 ml of distilled water to each tube.
4. Take bottle A, stopper it and shake vigorously for one minute. Then allow it to stand.
5. Note the time taken for the two layers to separate out.
6. Similarly, take bottles B, C, D and E and note the time taken for the separation of two layers in each case.
7. Now add 10 drops of 1% soap solution or 1% sodium oleate solution to each of the five bottles and find out the time taken for the two layers to separate. Record the observations.

Observations

Bottle or Tube	Name of the oil	Time taken for the separation of layers	
		Without soap/detergent	With soap/detergent
A	Castor oil	— s	— s
B	Coconut oil	— s	— s
C	Mustard oil	— s	— s
D	Cotton seed oil	— s	— s
E	Kerosene oil	— s	— s

Result

It is clear from the above observations that..... oil takes longest time to get separated from its emulsion and is rated 1 and..... oil takes the minimum time and is rated 5. The decreasing order of stability or effectiveness is.....

Precautions

1. Add equal number of drops of soap solution to all the bottles.
2. Each bottle should be shaken vigorously and for same time. .
3. The time should be recorded carefully. Start the stopwatch immediately after shaking is stopped and stop it immediately when the two layers just separate.