Salting Out of Ethanol and Water

Purpose

To introduce or illustrate the concept of intermolecular forces via *salting out*, or the separation of an organic phase from an aqueous phase by the addition of a salt.

Materials

DI Water	Two large test tubes with stoppers
Ethanol	1M HCl
Bromothymol blue indicator	Potassium carbonate

Procedure

1. To the first test tube, add 10mL of Ethanol, 10mL of DI water, 5 drops of bromothymol blue indicator, and 1 drop of 1M HCl.
2. Add 3g Potassium carbonate to the second test tube.
3. Pour the contents of the first test tube into the second. Stopper and shake the tube. The solution should turn blue and separate into two phases: a colorless aqueous and blue organic phase.

Questions for Students

1. Which phase is water, which is alcohol? Why?
2. Is the separation of water and alcohol complete?
3. Could other liquid pairs or salts be used?
4. Could a dye be found that would wind up in the water rich phase? Why?

Safety

Hydrochloric acid is corrosive to body tissue, so be sure to wear protective equipment.

Disposal

End mixture can be disposed of down the drain with excess water.