



كلية : التربية للعلوم الصرفة

القسم او الفرع : علوم الحياة

المرحلة: الاولى

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اسم المادة بالغة العربية : كيمياء تحليلية

اسم المادة باللغة الإنكليزية : Analytical Chemistry

اسم المحاضرة الثالثة باللغة العربية: تصنيف المحاليل

Solutions classifications : اسم المحاضرة الثالثة باللغة الإنكليزية :

## **Solutions classification**

Solutions are classified according to the nature of particles of the solute to: true solution, suspended solution, and colloidal solution.

**1- True solution**, in which the solute disappear between the molecules of the solvent, like NaCl in water.

**2- Suspended solution**, in which the particles of the solute can be distinguished. The solute particles are separated and settled in the bottom of the container, and do not pass through filter paper.

**3- Colloidal solution**, in which the particles of solute are suspended but do not settle in the bottom of the container, and pass through filter paper.

The presence of the solutes affect the properties of the solvent. They lower the vapour pressure, therefore the temperature increases above its boiling point to reach its usual vapour pressure. The boiling points of the solvent also increase in the presence of the solute, and if the solute is ionic its effect will be doubled. Pure water boils at  $100^{\circ}\text{C}$ , but in the presence of the solute it boils at higher temperature. The presence of the solute also lowers the freezing point of the solvent. Pure water freezes at  $0^{\circ}\text{C}$ , while the presence of sugar for example it freezes at  $-1.86^{\circ}\text{C}$ .