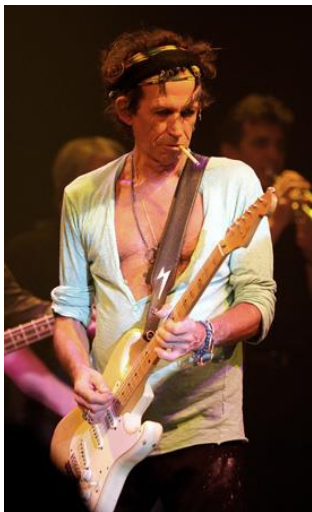ORGANIC CHEMISTRY LAB CHE-241 FORENSIC EXPERIMENT.

THE CASE OF THE COMATOSE GUITARIST.

As an expert in chemical toxicology you are called to work on the following case. A member of a famous English rock band was found in a coma in his dressing room after a gig. It was not an attempted suicide nor a recreational drug overdose, but rather an intentional poisoning by a disgruntled fan that, unhappy with the musical direction the band was taking, put poison into the water bottle of the victim. The fan unfortunately killed himself before the poison could be identified. However, a bottle of the poison was found near the comatose guitarist as well as the alleged contaminated water bottle.

This is where you come in. If the poison can be identified and quantified then an antidote can be administered. In the fan's room was found samples of 2 poisons in liquid form. It is known that each of the 2 poisons is undetectable in water by itself but since it must be pre-dissolved in one of the following organic solvents, if you can identify the solvent then the poison can be identified.
 ACETONE
ETHANOL
You have two samples.   The first is a small sample of the actual poison which is dissolved in one of the aforementioned solvents. You also have water bottle containing an undetermined amount of one of the solvent/poisons. If necessary, you have access to known samples of each of the 2 solvents

You must first identify which of the two solvents from the bottle of poison/solvent. Then you must quantify the amount (% by volume) of that solvent in the water bottle. With that information, a suitable antidote can be formulated.
For equipment you have:
Refractometer (for Index of Refraction).
IR spectrophotometer.
Gas Chromatogaph

Please develop and propose to your instructor, a planned method on how to proceed. Have the plan approved by your instructor before you begin any lab work. In terms of priority, it's a matter of life and death and there will never be another guitarist quite like Keith.

File:CHE-241 FORENSIC LAB
TPS REVISION 10/24/06