TLC separation of glucose, maltose, lactose, sorbitol and sucrose on silica gel plates impregnated with transition metal ions, Cu(II), NI(II), Zn(II) or Cd(II), has been achieved. The identification is very distinct by using KMnO4 (0.5%) in 0.1 M NaOH as the spray reagent. Two new solvent systems, (A) n-PrOH-H2O) (8:4, v/v), and (B) i-PrOH-H2O (8:4, v/v), were worked out.