Dear Editor of KUMJ

I wish to write a comment regarding the article entitled “Haemolytic Effects of Hypo-osmotic Salt Solutions on Human Erythrocytes” published in April-June issue of KUMJ in 2011. Our paper published in KUMJ has attracted a wide readership. According to research gate, more than 800 people have read our article. In view of such interest, I tried to understand the possible mechanism responsible for observation that hypotonic salt solutions of potassium are more effective than the sodium salt solutions of similar strengths, in hemolysing human red blood cells. Could it be a Hofmeister Effect? A search of pertaining literature revealed that a century ago Hofmeister found that sodium salts were better than potassium salts in precipitating the proteins from milk! Protein stability and enzymatic activity seem to be affected by ions. Several hypotheses were put forward to explain the ‘Hofmeister Effect’ but none of them were found to be completely satisfactory. The process of hypotonic hemolysis involves participation of several cyto-skeletal proteins like actin, spectrin, ankyrin and band 3 proteins which are involved in the swelling of red cells, assumption of spherical shape, formation of holes in the membrane through which hemoglobin escapes, leaving a ghost cell. Differing affinities of sodium and potassium for one or more of these proteins is most likely to be responsible for the differences that is reported in the paper. Further work is needed to confirm that the findings are indeed due to a Hofmeister effect.

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REFERENCES