intestine was everted on a glass rod; one end of the intestine was clamped whereas the whole intestine was filled with oxygenated Krebs buffer through the other end which was then sealed. The everted intestine was divided into sacs of 2.5-3 cm length by using silk sutures; few centimeters of duodenum and ileum were discarded (Zhou *et al.* 2010). Sacs, were divided into three groups (n=6 in each group) and soaked in Krebs buffer in a shaking water bath (60 cycles/min) for 10 min at 37 °C. The sacs were then transferred to the soaking solutions prepared (PRN only, PRN with GlcN and PRN with SLS) and were incubated as above. At the appropriate time points (20, 40 and 60 min) of incubation, sacs were removed (Chan *et al.* 2006; Qinna *et al.* 2015). Samples were drawn from inside the sacs by a needle and placed in Eppendorf tubes then kept in freezer at -20°C till HPLC analysis. All samples were diluted in distilled water (1/25) times before analysis.

2.2.9 Isolation and primary culture of rat hepatic cells

2.2.9.1 Preparation of buffers

All perfusion buffers were freshly prepared using sterile technique and were warmed for 30 minutes in a water bath (Elmasonic S, Elma, Germany) at 42 °C with an optimal temperature. Perfusion buffer I was prepared by adding 0.9 and 0.5 mM of $MgCl_2$ and EDTA, respectively, to Hank's Balanced Salt Solution (HBSS, without Ca^{2+} and Mg^{2+}). Perfusion buffer II was prepared by adding 0.5 mM Tris base to HBSS (with Ca^{2+} and Mg^{2+}). Perfusion buffer II plus collagenase II was prepared by dissolving 1000 U of collagenase II in 300 ml of perfusion buffer II. This buffer was kept warm in water-bath and used within 30 min after preparation. William's complete Medium was prepared by the addition of 2 mM of L-glutamine, 5% fetal bovine serum, 100 IU/ml penicillin and 100 mg/ml of streptomycin to Williams' Medium E.