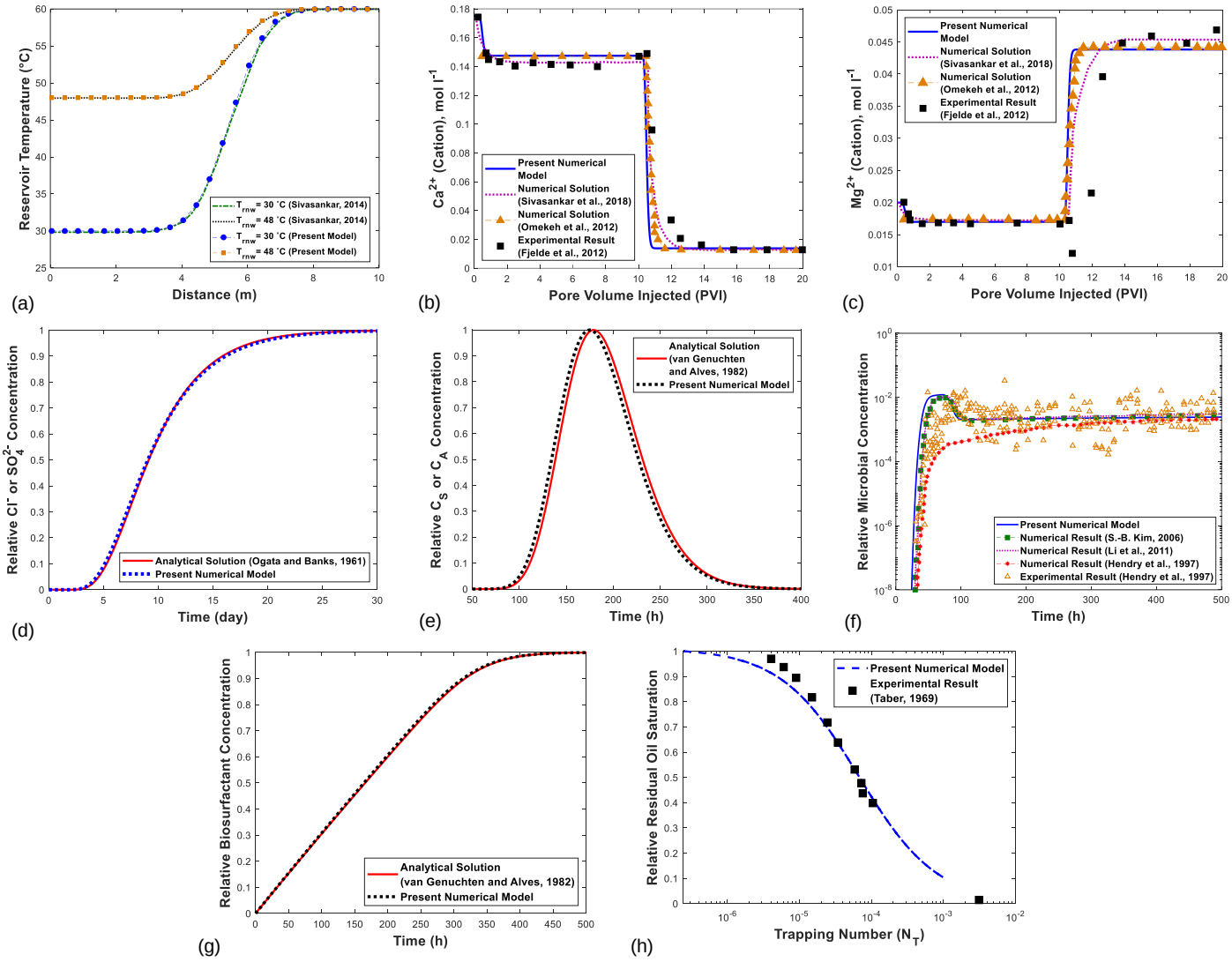

Fig. 1 – Verification and validation results for: (a) temperature distribution within sandstone formation with the numerical results for Sivasankar and Suresh Kumar, 2014 while using temperature near well-bore region (T_{rnw}) values of 30 °C and 48 °C; advective-dispersive transport along with multi-component ion exchange (MIE) within sandstone core of (b) calcium (Ca^{2+}) and (c) magnesium (Mg^{2+}) cations with the numerical solutions of Omekeh et al., 2012 and Sivasankar and Suresh Kumar, 2018, and the experimental results of Fjelde et al., 2012; (d) advective-dispersive transport of chloride (Cl^-) and sulphate (SO_4^{2-}) anions within sandstone porous media with the analytical solution of Ogata and Banks, 1961; (e) advective-dispersive transport, along with linear equilibrium sorption and 1st order decay of carbon substrate or sucrose (C_S) and nitrogen substrate or ammonium sulphate (C_A) within sandstone core with the analytical solution of van Genuchten and Alves, 1982; (f) advective-dispersive transport, along with linear equilibrium sorption, non-equilibrium reversible and irreversible attachment, growth and decay of microbes (C_X) within sandstone core with the numerical solutions of Hendry et al., 1997, Kim, 2006 and Li et al., 2011, and the experimental result of Hendry et al., 1997; (g) advective-dispersive transport, along with linear equilibrium sorption, zeroth order production and 1st order decay of biosurfactant (C_P) within sandstone core with the analytical solution of van Genuchten and Alves, 1982; and (h) variation of residual oil saturation (S_{or}) with increase in trapping number (N_T) during MEOR under varying temperature, salinity and pH conditions within sandstone core with the experimental result of Taber, 1969.