



**Fig. 2 – Evolution of the specific affinity of microbes 1, 2 and 3 within sandstone core towards their carbon substrate (sucrose) with respect to (a) core length at  $t = 32$  h and (b) simulation run-time at  $x = 0.004$  m from influent point; evolution of the specific affinity of the microbes towards their nitrogen substrate (ammonium sulphate) with respect to (c) core length at  $t = 32$  h and (d) run-time at  $x = 0.004$  m from influent point; variation of microbial specific growth rates ( $\mu_X$ ,  $h^{-1}$ ) of microbes 1, 2 and 3 within sandstone core as functions of (e) carbon substrate concentration and (f) nitrogen substrate concentration at simulation run-time of 38 h.**