**R pseudocode for bisection method to estimate overdispersion parameter**

while (previous\_LSSE ≠ current\_LSSE within 3 significant figures)

{

 previous\_LSSE = current\_LSSE

 start\_ρ = prev\_ρ – (prev\_increment / 2)

 end\_ρ = prev\_ρ + (prev\_increment / 2)

 current\_increment = prev\_increment / 4

 range = seq(start\_ρ, end\_ρ, by=current\_increment)

 for (values in range)

 {

 obtain\_beta-binomial\_distribution

 calculate\_LSSE\_between\_beta-binomial\_and\_empirical\_distributions

if(current\_LSSE\_within\_for\_loop > previous\_LSSE\_within\_for\_loop)

{

 current\_LSSE = previous\_LSSE\_within\_for\_loop

 break\_out\_of\_for\_loop

}

 }

}