The objective of this research was to develop diffusion models for papaya and mango glace’ drying. Effective diffusion coefficients of papaya and mango glace’ were evaluated by regression analysis of the experimental data to drying kinetic equation. Assuming developed models 1 and 2 that effective diffusion coefficients were constant and varied proportionally with the moisture ratio. Model 3, which the Arrhenius factor was a second-degree polynomial function of moisture content, was developed by assuming that the value of effective diffusion coefficient was constant over a short time interval. Considering the effect of volume shrinkage during drying developed model 4, which was similar to Model 3. Four diffusion models were compared and it was found that the predicted values of moisture contents calculated by using Models 1 and 2 were close to experimental values during the early period of drying. Models 3 and 4 were able to have better predictions particularly towards the final period of drying. However, Model 4 was complicated. Therefore, Model 3 was recommended for calculating drying curves of papaya and mango glace’ drying.