$$C_{12}H_{22}O_{11} + H_2O \xrightarrow{\text{acid}} C_6H_{12}O_6 + C_6H_{12}O_6$$

sucrose → glucose + fructose

Temperature dependence of the Rate of a reaction

The rate of most of the chemical reactions increases with increase in temperature. For many reactions, the rate constant is nearly doubled for every 10° rise in temp.

The relation between rate constant and temperature is called Arrhenius equation and given as,

$$K = A e^{-Ea/RT}$$

A - constant known as frequency factor or Arrhenius factor.

Ea - Activation energy

R → universal gas constant

T → Temperature.

Activation energy (Ea)

The excess of energy which must be supplied to the reactant molecules to undergo chemical reaction is called activation energy.