When the sensitivity coefficients of the first DNA fragment and the second DNA fragment can be approximated as m(1) and m(2), respectively, assuming that m = m(1) = m(2), and a total signal intensity S of the peaks of the first DNA fragment and the second DNA fragment on the electropherogram obtained by capillary electrophoresis is represented by (Math. 26) from (Math. 12).

[Math. 26]

$$S = m \cdot J = E \cdot T \cdot A \cdot m \cdot \mu \cdot C \qquad \text{(Math. 26)}$$

Alternatively, when the ratios of the concentrations C(1) and C(2) of the first DNA fragment and the second DNA fragment to the total concentration C of the first DNA fragment and the second DNA fragment in the sample are constant, (Math. 26) can also be obtained by defining m = (m(1) · C(1) + m(2) · C(2))/(C(1) + C(2)).

[0080]

Assuming that an approximation of q = q (1) = q (2) is established using (Math. 15), (Math. 27) is established.

[Math. 27]

$$S = \frac{\frac{m \cdot I \cdot T}{q}}{1 + \frac{q_0 \cdot \mu_0 \cdot C_0}{q \cdot \mu \cdot C}} \qquad \text{(Math. 27)}$$

Alternatively, when the ratios of the concentrations C(1) and C(2) of the first DNA fragment and the second DNA fragment to the total concentration C of the first DNA fragment and the second DNA fragment in the sample are constant, (Math. 27) can also be obtained by defining q = (q(1) · C(1) + q(2) · C(2))/(C(1) + C(2)).

[0081]

(Math. 16) to (Math. 21), (Math. 24), (Math. 25), and (Math. 27) can be expressed by the following expressions in which y is a function of x with a and b as constants.

[Math. 28]