Erratum: DNA electrophoresis in microfluidic post arrays under moderate electric fields [Phys. Rev. E **73**, 061922 (2006)]

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As noted by Mohan and Doyle [1], Eq. (12) of my paper is incorrect. The most straightforward approach to correct the problem is to adopt a quasisteady approximation for the tether point. In such a case, the rope-over-pully velocity does not contribute to the chain tension. Instead, it slowly moves the tether point, implying that Eq. (10) should be $n_f = 3\lambda_f$. Thus, Eq. (12) should be $\bar{L} = N - 2\lambda_f$ and the parameter $\bar{L}$ appearing in Eq. (5) should not depend on $\bar{v}$. With this correction, the following points in the paper are changed.

(1) In Secs. IIA and IIB, the lower force for given collision is $\lambda_f \leq rN/3$, which will ensure that the short arm at least contains a flower. Thus, the lowest permissible value of r occurs when the short arm only has a flower ($N_2 = n_f$), i.e., $r^* = 3\lambda_f/N$. A corollary of this limit is that working at the maximum value of λ_f implies that all stem-flower collisions will be with equal offsets ($r = 1/2$). To avoid such an aphysical scenario, the practical bounds for the field are $1/3 \leq \lambda_f \ll N/6$. Equations (13)–(16) no longer apply, as $\bar{L} \neq \bar{L}(\bar{v})$.

(2) If the pre-averaged extension model is used, Eq. (20) should be $\tau_1 = N - 4\lambda_f$.

(3) The corrected unhooking time [replacing Eqs. (21)–(25)] is

$$\tau_2 = \frac{N - 4\lambda_f}{2} \ln\left(\frac{1 - 2r^*}{1 - 2r_0}\right), \tag{1}$$

where r^* is defined above. The final result is independent of the choice of r^* because the unhooking time in the model is dominated by the slow dynamics during collisions where $r \approx 1/2$.

(4) Assuming the flower instantaneously moves to the other side of the post following the unhooking, Eq. (26) should be $\bar{L}_f = N - 4\lambda_f$.

(5) The procedure for the random walk derivation in Sec. IIIB is correct, but the latter changes require that Eq. (31) be $\tau = \tau_{\min} + \tau_2$, $\tau_{\max} = \infty$ and Eqs. (35)–(38) be

$$P(\tau \leq \tau'|n) = \frac{2r_0(\tau'|n)}{(1 - 2r^*)}, \tag{2}$$

$$r_0 = \frac{1}{2} - \frac{1 - 2r^*}{2} \exp\left\{-\frac{2[\tau - (N + n\alpha)]}{N - 4\lambda_f}\right\}, \tag{3}$$

$$g(\tau|n) = \left(\frac{2}{1 - 2r^*}\right)\frac{dr_0}{d\tau}, \tag{4}$$

$$g(\tau|n) = \frac{2}{N - 4\lambda_f} \exp\left\{-\frac{2[\tau - (N + n\alpha)]}{N - 4\lambda_f}\right\}. \tag{5}$$

(6) In the calculation of the moments of the random walk, Eq. (42) should be

$$\mathcal{L}(s) = \frac{2\rho e^{4\lambda_f s}}{s(N - 4\lambda_f) + 2}. \tag{6}$$

(7) The mean velocity and dispersivity are given by Eqs. (55) and (56), where $n^* = (N - 4\lambda_f)/\alpha$. Equations (48)–(54) are unnecessary.

(8) The average unhooking time is now generally faster than the taut chain, owing to the relaxation. The effect of the relaxation is algebraic, not logarithmic. The dimensionless velocity $\bar{U}^*$ increases and $\bar{D}^*$ decreases with increasing λ_f (decreasing E), in qualitative agreement with the alternative stretching model proposed by Mohan and Doyle [1]. The resolution in the revised stem-flower model decreases with the field, in contrast to the experiments for the parameters in Fig. 5.

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[1] A. Mohan and P. S. Doyle, Macromolecules **40**, 8794 (2007).