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INFORMATION

Hokkaido University granted the degree of Doctor of Veterinary Medicine to the following 2 researchers on 25 December, 1973 under a new regulation (1962) authorizing the granting of the Graduate School of Veterinary Medicine.

The titles of their theses and other informations are as follows:

NUMERICAL ANALYSIS ON THE WAVY TRACK OF NEMATODES

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Analyses of the bending waves in the locomotive tracks left by nematodes on the surface of a 1% agar plate coated with drafting ink were attempted by the help of many photomicrographs. A functional formula suitable for these tracks was investigated. The results obtained are summarized as follows:

Waves of tracks are classified 4 principal types, A (resemble sine curve), A' (flatter than A), B (U-shaped) and C (horseshoe-shaped). The gap between the sine curve and the track wave increases from A' to A, B and C-types respectively.

Using the curvature $\left(\frac{1}{\rho}\right)$ and the arc-length (s) of the track, the track wave is transformed into a normalized curve, which follows the sine curve and is expressed by the equation $\frac{1}{\rho} = \bar{A} \sin \frac{2\pi}{M} s$ (\bar{A} is the amplitude and M is the track length in a wave-length).

Using the s and θ (angle by which the row deviates from the mean track direction), the above mentioned equation is integrated and the equation of sine-generated curve (SGC), $\theta = \omega \cos \frac{2\pi}{M} s$ (ω is the maximum angle the curve makes from the x -axis) is obtained. Therefore, the SGC fits for all 4 principal track waves.

Parameter ω and M have a mutual relation and acquire regression lines, the ω and M of the track are not influenced by various body-lengths of the same species and under a thermal gradient, but with a lapses of time and under a hige agar concentration, the value of M decreases. And the velocity of the nematode decreases when the value of M decreases and the value of ω increases.