The pharynx in Stilbonematinae (Nematoda, Desmodoridae): Adaptation to the symbiotic life-style?

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There are 11 stilbonematine genera known so far with approx. 50 species. All of them have their own genus- and even species-specific symbiotic coat. More precisely, each stilbonematine nematode possesses one and only one species of bacterial symbionts that builds its coat. Serially arranged basiepidermal glandular sensory organs (Nebelsick et al. 1992, Bauer-Nebelsick et al. 1995) produce (i) mucus which covers the cuticle of the nematode and (ii) specific C-type lectins (Mermaids, Bulgheresi et al. 2006) that supposedly play a crucial role in establishing and maintaining the host-symbiont contact. Three basic properties of bacterial coats are present: mono- or complex monolayered bacterial coats with a thin mucus layer and multilayered bacterial coats with a prominent mucus layer on the cuticle in which these ectosymbionts are embedded. When a monolayered bacterial coat is present (Catanema, Robbea) the stilbonematid usually possesses an enlarged muscular corpus. In contrast, in stilbonematids with a multilayered or complex monolayered coat (Stilbonema, Leptonemella and Eubostrichus, respectively) the anterior part of the pharynx is cylindrical. Based on a theoretical biomechanical model of the nematode pharynx (Roggen, 1979) possible morphological adaptations of the pharynx to the symbiotic coat are assessed.