

Dark Spots Disease | Enfermedad de Manchas Oscuras

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Dark spots disease (DSD), also called dark spots syndrome, is characterized by circular, oblong, or ring-shaped dark spots that can increase in size and sometimes cause tissue mortality, often leaving a depression on the colony surface.¹⁻⁶ DSD affects primarily *Siderastrea siderea* (massive starlet corals) and *Stephanocoenia intersepta*, but has also been observed in *Colpophyllia natans*, *Montastraea* and *Orbicella* species, among others.^{4,6-11} DSD was first recorded in Colombia in the 1990s and was later observed in the western Atlantic in 2001.^{3,4} DSD is prominent throughout Puerto Rico and the wider Caribbean,^{4,6-11} although progression rates are relatively slow compared to other coral diseases and whole colony mortality is rare.^{8,12-14} Some research has even observed hopeful rates of tissue regeneration and colony recovery, although this depends on the region and coral host species.¹³⁻¹⁵ The etiology of DSD remains unknown. Some research has found evidence that DSD could be a bacterial infection, possibly with connections to *Vibrio* species.^{11,16} However, no pathogen has been identified, and some researchers theorize that observed DSD symptoms could be caused by a non-specific stress response or may even represent multiple diseases clumped under one name.^{1,3,5,8,11,12} Some possible variants have been described over the years, namely DSD type II, dark bands, and ring disease.^{3,7,8} DSD prevalence and severity can vary with water depth, temperature and nutrient levels, though the existence and nature of such trends varies across time, location and species.^{6,10,15,17-19} Spatial analyses have mostly found that DSD follows a contagious mode of transmission,^{6,7,10,20} and several studies have found that DSD can affect the abundance or diversity of symbiotic algae.^{1,9} Experimental antimicrobial treatments were used during an outbreak in an aquarium in Curaçao, however these were ineffective and never attempted on wild populations.⁷ No other known treatment for DSD exists.

La enfermedad de las manchas oscuras (DSD, por sus siglas en inglés), también llamado síndrome de las manchas oscuras, se caracteriza por manchas oscuras circulares, oblongas o en forma de anillo que puedan aumentar de tamaño y, a veces, causar la muerte del tejido y dejar una depresión en la superficie de la colonia.¹⁻⁶ La DSD afecta principalmente a *Siderastrea siderea* (coral estrella masiva) y a *Stephanocoenia intersepta*, pero también se ha observado en *Colpophyllia natans*, especies de *Montastraea* y *Orbicella*, entre otras.^{4,6-11} La DSD se registró por primera vez en Colombia en la década de 1990 y luego se observó en el Atlántico occidental en 2001.^{3,4} La DSD es prominente en todo Puerto Rico y el Caribe,^{4,6-11} aunque la tasa de progresión es relativamente lenta en comparación a las otras enfermedades de corales y la mortalidad de una colonia entera es rara.^{8,12-14} En algunas investigaciones se ha observado la regeneración de tejido y la recuperación de colonias, aunque esto depende de la región y las especies de coral hospedantes.¹³⁻¹⁵ Se desconoce la etiología de la DSD. Algunas investigaciones encontraron evidencia de que el DSD podría ser una infección bacteriana, posiblemente con conexiones a *Vibrio spp.*^{11,16} Sin embargo, no se ha identificado ningún patógeno, y se teoriza que las síntomas de DSD observadas podrían ser causadas por una respuesta de estrés o que podrían representar varias enfermedades agrupadas bajo un nombre.^{1,3,5,8,11,12} Se ha descrito algunas variantes posibles a través de los años, que se llaman la DSD tipo II, las bandas oscuras y la enfermedad del anillo.^{3,7,8} La prevalencia y la virulencia de la DSD parece variar

con la profundidad del agua, la temperatura y los niveles de nutrientes, aunque la existencia y naturaleza de estas tendencias varían temporalmente, espacialmente y por especie.^{6,10,15,17–19} Los análisis espaciales encontraron que la DSD sigue un modo de transmisión contagioso,^{6,7,10,20} y varios estudios han encontrado que la DSD puede afectar la abundancia o diversidad de algas simbióticas.^{1,9} En una investigación durante un brote en un acuario en el país Curazao se utilizaron tratamientos antimicrobianos experimentales, pero no fueron efectivos para tratar la DSD.⁷ No existe ningún otro tratamiento conocido para DSD.

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