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# Methylene Blue Oral Rinse

National Cancer Institute

## Source

National Cancer Institute. *Methylene Blue Oral Rinse*. NCI Thesaurus. Code C150294.

An oral rinse composed of the diaminophenothiazine dye methylene blue (MB), an inhibitor of nitric oxide (NO) synthase (NOS) and soluble guanylate cyclase (sGC), with potential local analgesic and antioxidant activities. Although the exact mechanism by which MB exerts its analgesic effect has yet to be fully elucidated, upon rinsing with the MB oral rinse, the MB preferentially targets and binds to nerve cells and blocks the electrical conductivity of nerve fibers, thereby blocking neuronal excitability. This inhibits pain signaling and produces an anti-nociceptive effect. In addition, MB inhibits the production of oxygen, NO, oxygen free radicals and superoxides by NOS, and prevents the accumulation of cyclic guanosine monophosphate (cGMP) by directly inhibiting sGC and by constraining NO-dependent sGC activity. This prevents the activation of the NO-cGMP signal pathway, which plays a role in neuropathic pain, and promotes an analgesic effect. Administration of the MB oral rinse may improve the intractable pain of oral mucositis.