

Cannabinoids as Cancer Hope?

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"Cannabinoids possess ... anticancer activity [and may] possibly represent a new class of anti-cancer drugs that retard cancer growth, inhibit angiogenesis (the formation of new blood vessels) and the metastatic spreading of cancer cells." So concludes a comprehensive review published in the October 2005 issue of the scientific journal *Mini-Reviews in Medicinal Chemistry*.

Not familiar with the emerging body of research touting cannabis' ability to stave the spread of certain types of cancers? You're not alone.

For over 30 years, US politicians and bureaucrats have systematically turned a blind eye to scientific research indicating that marijuana may play a role in cancer prevention -- a finding that was first documented in 1974. That year, a research team at the Medical College of Virginia (acting at the behest of the federal government) discovered that cannabis inhibited malignant tumor cell growth in culture and in mice. According to the study's results, reported nationally in an Aug. 18, 1974, *Washington Post* newspaper feature, administration of marijuana's primary cannabinoid THC, "slowed the growth of lung cancers, breast cancers and a virus-induced leukemia in laboratory mice, and prolonged their lives by as much as 36 percent."

Despite these favorable preclinical findings, US government officials dismissed the study (which was eventually published in *the Journal of the National Cancer Institute* in 1975), and refused to fund any follow-up research until conducting a similar -- though secret -- clinical trial in the mid-1990s. That study, conducted by the US National Toxicology Program to the tune of \$2 million concluded that mice and rats administered high doses of THC over long periods experienced greater protection against malignant tumors than untreated controls.

Rather than publicize their findings, government researchers once again shelved the results, which only came to light after a draft copy of its findings were leaked in 1997 to a medical journal, which in turn forwarded the story to the national media.

Nevertheless, in the decade since the completion of the National Toxicology trial, the U.S. government has yet to encourage or fund additional, follow up studies examining the cannabinoids' potential to protect against the spread cancerous tumors.

Fortunately, scientists overseas have generously picked up where US researchers so abruptly left off. In 1998, a research team at Madrid's Complutense University discovered that THC can selectively induce apoptosis (program cell death) in brain tumor cells without negatively impacting the surrounding healthy cells. Then in 2000, they reported in the journal *Nature Medicine* that injections of synthetic THC eradicated malignant gliomas (brain tumors) in one-third of treated rats, and prolonged life in another third by six weeks.

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In 2003, researchers at the University of Milan in Naples, Italy, reported that non-psychoactive compounds in marijuana inhibited the growth of glioma cells in a dose dependent manner and selectively targeted and killed malignant cancer cells.

The following year, researchers reported in the journal of the American Association for Cancer Research that marijuana's constituents inhibited the spread of brain cancer in human tumor biopsies. In a related development, a research team from the University of South Florida further noted that THC can also selectively inhibit the activation and replication of gamma herpes viruses. The viruses, which can lie dormant for years within white blood cells before becoming active and spreading to other cells, are thought to increase one's chances of developing cancers such as Kaposi Sarcoma, Burkitts lymphoma, and Hodgkins disease.

More recently, investigators published pre-clinical findings demonstrating that cannabinoids may play a role in inhibiting cell growth of colorectal cancer, skin carcinoma, breast cancer, and prostate cancer, among other conditions. When investigators compared the efficacy of natural cannabinoids to that of a synthetic agonist, THC proved far more beneficial – selectively decreasing the proliferation of malignant cells and inducing apoptosis more rapidly than its synthetic alternative while simultaneously leaving healthy cells unscathed.

Nevertheless, US politicians have been little swayed by these results, and remain steadfastly opposed to the notion of sponsoring – or even acknowledging – this growing body clinical research, preferring instead to promote the unfounded notion that cannabis use causes cancer. Until this bias changes, expect the bulk of research investigating the use of cannabinoids as anticancer agents to remain overseas and, regrettably, overlooked in the public discourse.

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