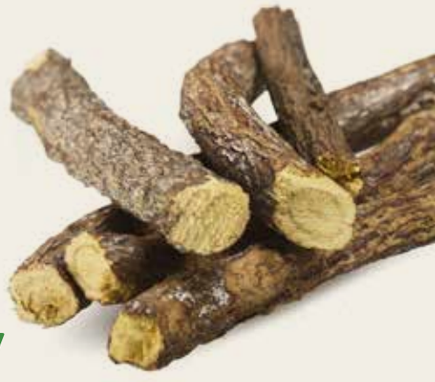
Ashwagandha Enhances Telomerase Activity



THEORY:

Ashwagandha (*Withania somnifera* Dunal) has been used for millennia as a rasayana or "life extender" in Ayurveda. Researchers are studying how to extend healthy lifespan, including looking at some of the physiological factors that may accelerate the aging process, specifically, the degradation of telomeres. While ashwagandha has been suggested to increase longevity, there is only limited scientific evidence to support the claim. Could ashwagandha's anti-aging effects be attributed in part to an ability to enhance telomerase activity?

PARAMETERS:

Human HeLa cells were maintained in DMEM, supplemented with 10% fetal bovine serum in a humidified incubator. Cells (40%-60% confluency) were treated with various concentrations—10 µg, 50 µg, 100 µg, 500 µg, 5 mg—of ashwagandha root extract (as KSM-66 Ashwagandha from Ixoreal Biomed). Cells were collected and centrifuged, and detection of telomerase activity assayed using the PCR-based telomeric repeat amplification protocol (TRAP assay).

OUTCOME:

Ashwagandha root extract powder, at a concentration of only 10 µg to 50 µg, **increased telomerase activity** by **45%** upon 72 hours of exposure.

There was a **dose-dependent increase in telomerase** activity up to 50 µg/ml, after which activity started decreasing as the preparation is a powder suspension.

Telomerase activity was highest between 50 ng and 5 µg of total protein of cell extract, with 2 µg as the ideal protein concentration in this study.

Researchers concluded: "Ashwagandha root extract is able to enhance telomerase activity," and suggest it should be evaluated under various adult onset disease conditions for its holistic protective effect.

IMPACT:

Aging-associated telomere shortening is well documented, while telomerase, which is needed to maintain telomere length through replication, is essential for healthy life.[1] Several factors, including stress, aggravate the senescence process through telomere shortening.[2] As ashwagandha exerts anti-stress activities, its ability to enhance telomerase activity suggests it may indeed function as a "life extender" by supporting the body's natural processes.

1. *Curr Opin Cell Biol.* 2006;18:254-260. DOI: 10.1016/j.ceb.2006.03.003.
2. *PNAS*. 2004;101(49):17312-15. DOI: 10.1073/pnas.0407162101.

Source: Raguraman VR, Subramaniam JR. "*Withania somnifera* Root Extract Enhances Telomerase Activity in the Human HeLa Cell Line." *Adv Biosci Biotechnol*. 2016;7:199-204. DOI: 10.4236/abb.2016.74018.