

WHICH TERRESTRIAL OR EXTRATERRESTRIAL FACTORS COULD CONTRIBUTE TO THE *DEINOCOCCUS RADIODURANS* RADIATION RESISTANCE?

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It's still uncertain the kind of evolutionary advantage responsible of *Deinococcus radiodurans* radioresistance. Up today, explanations like panspermia and the development of radioresistance as a collateral effect of oxidative stress resistance have been proposed. In order to shed a light to the possible effect of the radiation itself in the evolution of this bacteria, preliminary information about the physics of the radiation and its interactions with matter; the relevant biological aspects as the genome, the period of birth, and the ecology of the *D. radiodurans*, as well as some radiation sources of geological and astronomical nature, are presented. The variation in time of this factors is presented when is available.

Deinococcus radiodurans is a bacterial species known for its superior capacity of resist high radiation dose, capacity among others like oxidative stress and dryness resistances. Even though these capacities are broadly known, the nature of their origin remains still undiscovered (Alcántara 2012). Despite the hundreds of chain breaks given in the ADN structure of the bacteria under high dose of radiation, it has been observed that the capacity of radioresistance of the bacteria lies in its repair and genetic material damage prevention skills (Cox 2005).

The result of this revision allows proposing solar radiation and the different atmospheric composi-

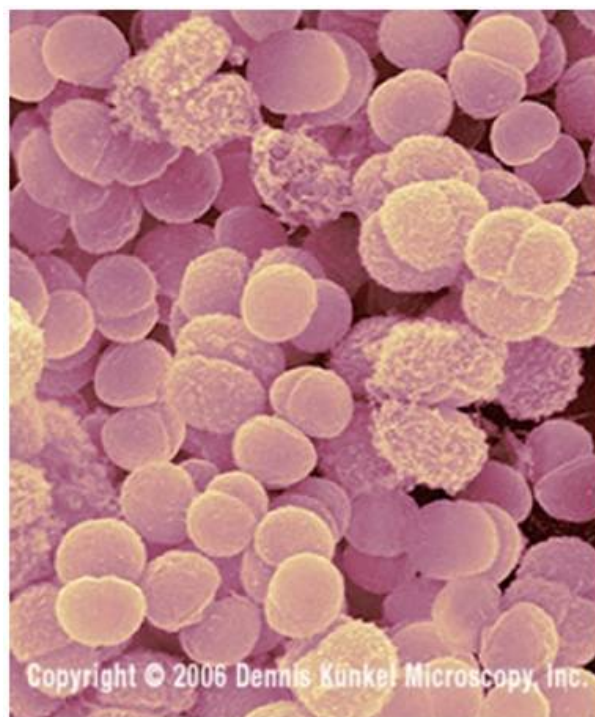


Fig. 1. A microscopic view of a *D. radiodurans* population.

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tions as influential factors, concluding that radiation resistance of *D. radiodurans* is linked to effective defense mechanisms. Regardless, it remains uncertain what conditions were necessary for this radioresistance to occur, although radiation from the Sun and the different products of its activity, in particular solar flares, are presented as factors that could have played a role.

REFERENCES

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