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Presence of rocket salad (*Eruca sativa*) in the medium might affect the growth of *Lactobacillus acidophilus* and its biological properties

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Fruits and vegetables contain high amount of polyphenols capable to exert several beneficial effects on the human health. Few studies refer to the effect of plant extracts, rich in polyphenols and with a high level of antioxidant activity, on the growth of probiotics and on some of their metabolic activities. The work was aimed to evaluate the influence of rocket salad (*Eruca sativa*) on the growth and some biochemical and biological (antioxidant, antimicrobial) properties of a strain of the probiotic *Lactobacillus acidophilus. Lb acidophilus* was anaerobically grown in MRS broth containing extract of *Eruca sativa*. After 24 h, the culture was serially diluted in physiological solution, and plated onto MRS agar. An aliquot of the culture was recovered by centrifugation, and washed twice. Pellet was treated following the method of and assayed for antioxidant activity (DPPH method). The antimicrobial activity of filtered supernatant was assayed based on the inhibition halo test against *Bacillus cereus, Staphylococcus aureus, Escherichia coli* and *Pseudomonas aeruginosa* pathogen strains. *Lb. acidophilus* grown in MRS was used as control. Rocket salad did not negatively affect the growth of *Lb acidophilus*, which showed values ($1.2x10^7$ cfu/ml) just slightly lower than the control ($1.25x10^8$ cfu/ml), after 24 h of incubation at 37°C. Antioxidant power of *Lb acidophilus* was increased from 17% to 24% (EC_{50}=92.13 µl of the control versus EC50 48.64 µl of *Lb acidophilus* grown in the presence of *Eruca sativa*, respectively), testifying that the presence of *Eruca sativa* could enhance the antioxidant capability of this probiotic strain. Antimicrobial activity was similar to the control. These preliminary data led to hypothesize that the growth of *Lb acidophilus* with *Eruca sativa* could enhance some properties of the strain, with potential positive effects on human health, to be evaluated through other *in vitro* and in vivo tests.

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