Epicatechin (EC) is one of the most abundant flavonoids in the human diet. It has been reported to exhibit a range of biological activities although their precise mechanisms of action have not been yet elucidated.

In order to gain further insight into the mechanisms involved in the biological activity of this flavonoid, in this work some stress biomarkers (ROS production, lipid peroxidation and protein carbonylation) have been determined in *C. elegans* wild-type N2 strain after treatment with EC. Besides, the influence of EC on oxidative stress resistance has been explored in a series of worm mutants of the insulin/insulin-like growth factor 1 (IGF-1) pathway (*daf-2*, *age-1*, *daf-16*, *akt-1*, *akt-2*; *sgk-1*, *hsf-1*, *skn-1*), and the expression of some of stress resistance associated genes (i.e., *daf-16*, *skn-1* *hsf-1*, *hsp-16.2*, *hsp-70*, *sod-3* and *gst-4*) has been analyzed by quantitative real-time PCR or using transgenic strains expressing fluorescent reporters.

The treatment with EC led to an increase in the survival of the nematode when subjected to thermal stress and also enhanced the protection against oxidative damage. It was concluded that the effects of EC were, at least in part, mediated through modulation of the insulin/IGF-1 signaling pathway. Furthermore, it was found that EC upregulated the expression of phase II enzymes and heat shock proteins, which would improve the capacity of detoxification and elimination of damaged proteins in the worm.

This work was funded by MINECO (Spanish National Projects AGL2015-64522-C2) and FEDER Interreg España-Portugal Programme (Ref. 0377_IBERPHENOL_6_E).