

Antidiabetic and antioxidant properties of *Tagetes erecta*

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INTRODUCTION

Diabetes mellitus is an important health problem that can cause severe health problems and even death when no treated. Type II diabetes is mainly treated with oral antidiabetic drugs. Natural products are gaining interests since certain food ingredients and plant bioactives exert antidiabetic and antioxidant properties through the inhibition of certain enzymes and pathways of glucose regulation.

Tagetes erecta is an edible flower that has shown to have many interesting properties due to its polyphenol-based composition such as digallic-acid, myricetin or larcitrin and its glycosides¹. Those polyphenols have been studied isolated showing antioxidant properties among others².

OBJECTIVE

Study of antidiabetic and antioxidant properties of two types of edible flowers *Tagetes erecta*: yellow and orange.

MATERIALS AND METHODS

The antidiabetic potential of the extracts was quantified by the ability to inhibit α -glucosidase³ enzyme in vitro; and it also was evaluated the capacity of these extracts to inhibit the production of advanced glycation end products (AGEs)⁴ by a non-enzymatic reaction.

The antioxidant properties were quantified by the in vitro elimination of superoxide radicals (O_2^-) generated through the xanthine/xanthine oxidase reaction³.

RESULTS

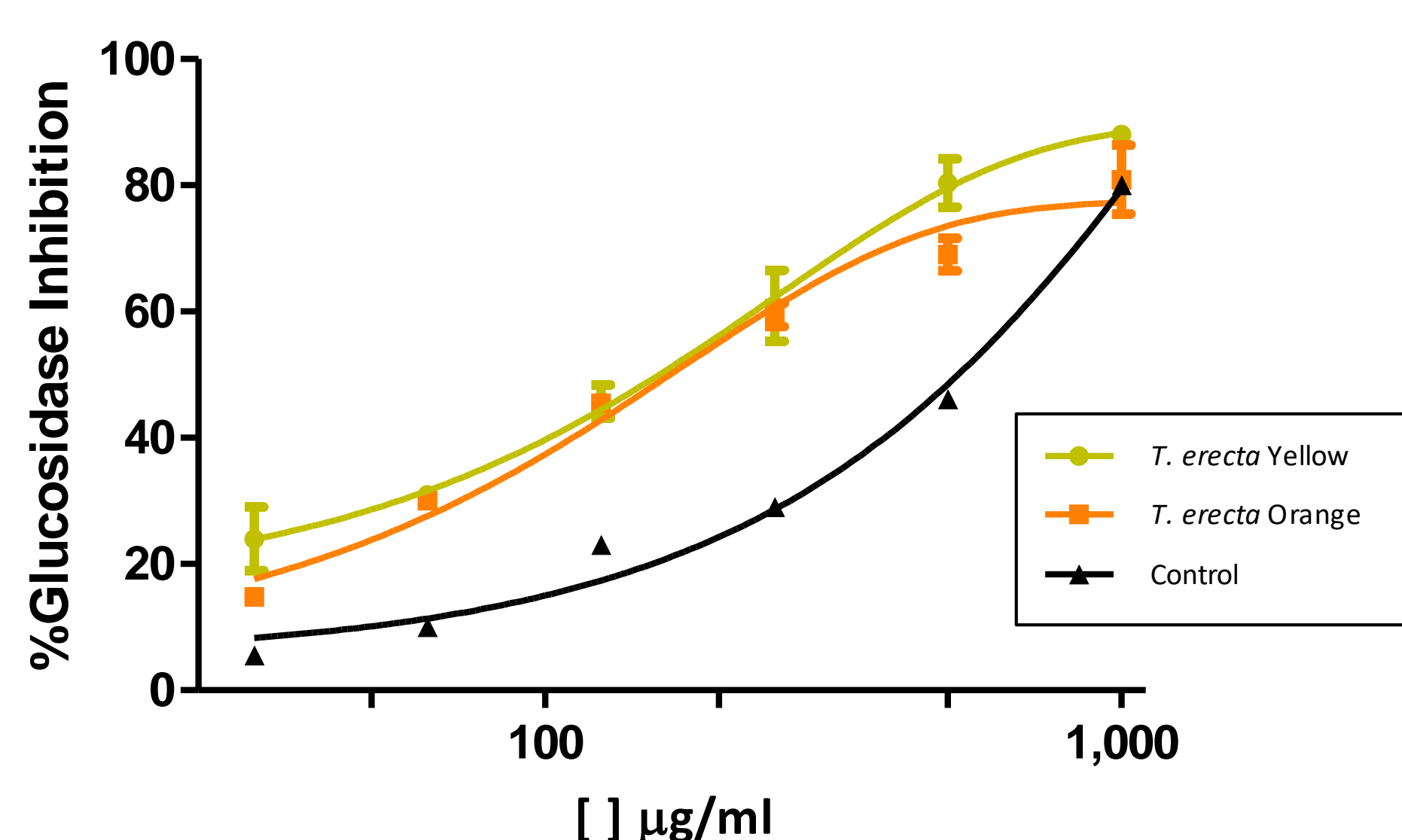


Fig. 1. Dose-response inhibition of α -glucosidase by the *Tagetes* extracts. (n = 3)
Acarbose used as control (IC_{50} = 380 μ g/ml)

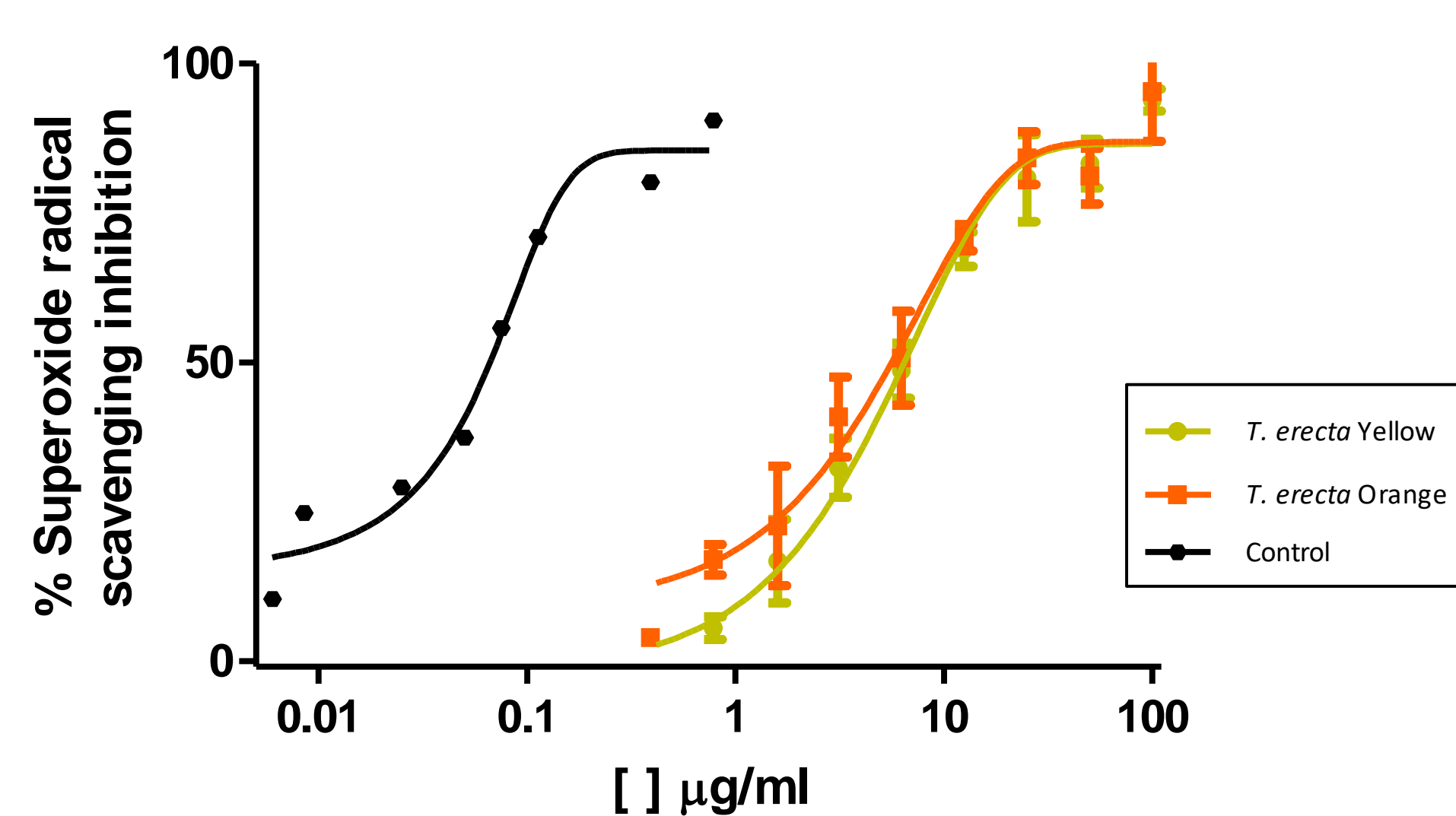


Fig. 2. Dose-response antioxidant activity of the extracts by elimination of superoxide radicals (O_2^-). (n = 3)
Gallic acid used as control (IC_{50} = 0.044 μ g/ml).

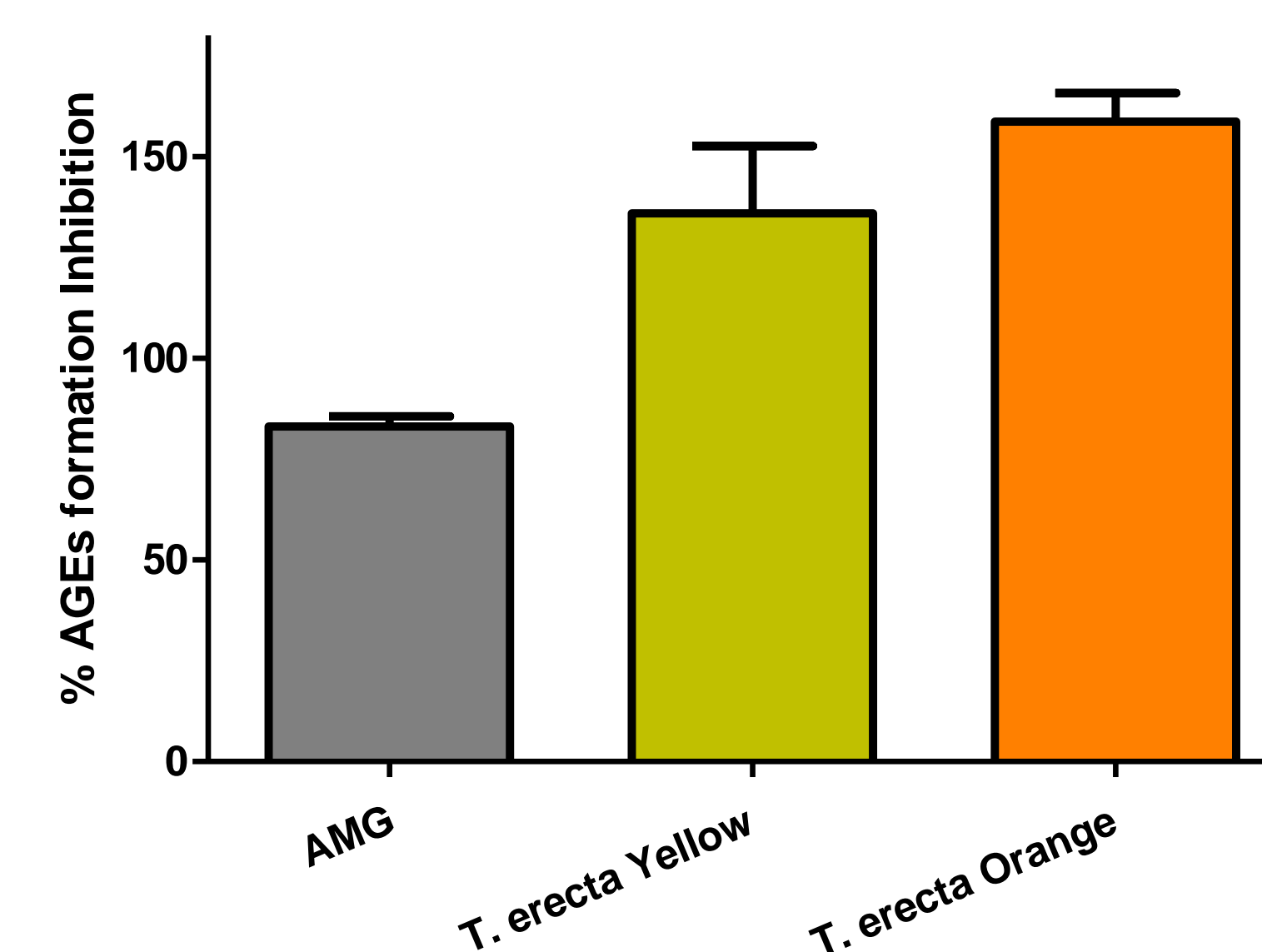


Fig. 3. Advanced glycation end products (AGEs) formation inhibition by the extracts and control at the concentration of 600 μ g/ml. (n = 3)
Aminoguanidine (AMG), experimental antidiabetic drug, used as control.

CONCLUSIONS

Both types of *T. erecta* showed lower IC_{50} values in the α -glucosidase assay than the reference drug acarbose and higher inhibition AGEs formation potential than the reference substance aminoguanidine. They also showed important antioxidant properties through the elimination of superoxide radicals (O_2^-).

The flowers of *Tagetes erecta* can be considered as source of polyphenol bioactive compounds with interesting properties as functional foods in the prevention and improvement of chronic diseases such as diabetes.

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