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IN VITRO CULTURES OF *BRASSICA OLERACEA* L. VAR. *COSTATA* DC: POTENTIAL PLANT BIOREACTOR FOR ANTIOXIDANT PHENOLIC COMPOUNDS

M Taveira [a, *], D M Pereira [a]; P B Andrade [a], C Sousa [a], F Ferreres [b], A Martins [c], J A Pereira [c], R M Seabra [a], P Valentão [a]

[a] *REQUIMTE/Serviço de Farmacognosia, Faculdade de Farmácia, Universidade do Porto, R. Aníbal Cunha 164, 4050-047 Porto, Portugal*

[b] *Research Group on Quality, Safety and Bioactivity of Plant Foods, Department of Food Science and Technology, CEBAS (CSIC), P.O. Box 164, 30100 Campus University Espinardo, Murcia, Spain*

[c] *CIMO/Escola Superior Agrária, Instituto Politécnico de Bragança, Campus de Sta Apolónia, Apartado 1172, 5301-855 Bragança, Portugal*

**taveira.marcos@gmail.com*

Abstract

In this work it were studied the phenolic composition of *in vitro* material (shoots, *calli* and roots) of *Brassica oleracea* var. *costata* and its antioxidant capacity. Samples were obtained in different culture medium, with distinct supplementation, in order to verify their influence in those parameters. In *calli* and roots no phenolic compound was identified. In shoots it was verified the presence of thirty six compounds, which included nine hydroxycinnamic acids, nineteen flavonoids derivatives and eight hydroxycinnamic acyl glycosides (**Figure 1**.). MS liquid medium supplemented with 2 mg/L benzylaminopurine (BAP) and 0.1 mg/L naphthaleneacetic acid (NAA) revealed to be the best *in vitro* conditions to produce shoot material with highest phenolic compounds contents and stronger antioxidant potential, thus with increased health benefits.

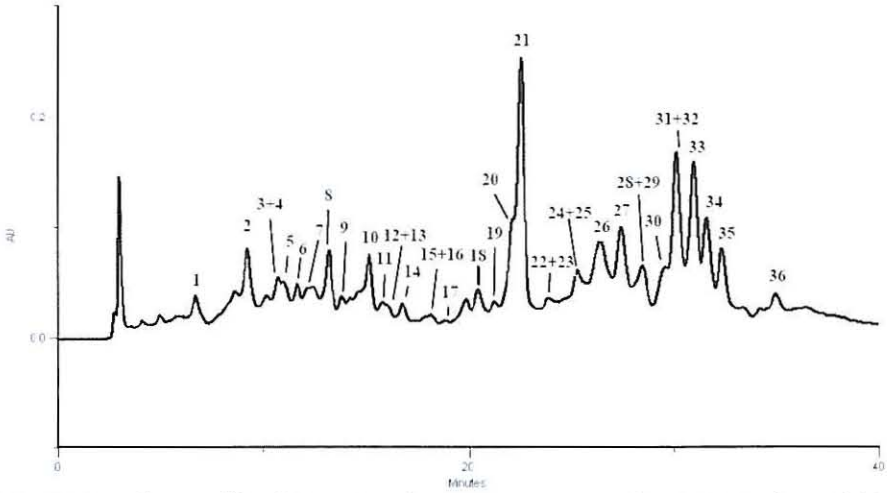

Figure 1. HPLC-DAD phenolics profile of *Brassica oleracea* var. *costata* shoots. Detection at 330 nm. Peaks: (1) 3-CQA; (2) 3-*p*-CoQA; (3) 3-feruloylquinic acid; (4) 4-CQA; (5) K-3-*O*-(Caf)-Sopht-7-*O*-G; (6) caffeoylferuloylquinic acid; (7) Q-3-*O*-(Sin)-Sopht-7-*O*-G; (8) K-3-*O*-(Sin)-Sopht-7-*O*-Soph; (9) K-3-*O*-(Sin)-Sopht-7-*O*-G; (10) 4-*p*-CoQA; (11) K-3-*O*-(Fer)-Sopht-7-*O*-G; (12) K-3-*O*-(Sin)-Sopht-7-*O*-R; (13) Q-3-*O*-(Sin)-Sopht; (14) K-3-*O*-(methoxyCaf)-Sopht; (15) K-3-*O*-(Fer)-Sopht-7-*O*-R; (16) Q-3-Soph; (17) Sin,Caf,Fer-Gent; (18) *p*-coumaric acid; (19) K-3-*O*-(Caf)-Sopht; (20) ferulic acid; (21) sinapic acid; (22) K-3-*O*-(Fer)-Sopht; (23) K-3-*O*-Soph; (24) K-3-*O*-(methoxyCaf/Sin)-Sopht-7-*O*-Soph; (25) Sin,methoxyCaf-Gent; (26) K-3-*O*-(methoxyCaf/Sin)-Sopht-7-*O*-G; (27) K-3-*O*-(Caf/Sin)-Sopht-7-*O*-Soph; (28) K-3-*O*-(Caf/Sin)-Sopht-7-*O*-G; (29) Q-3-*O*-(diSin)-Sopht-7-*O*-G; (30) diSin,methoxyCaf-Gent; (31) diSin,Caf-Gent; (32) K-3-*O*-(diSin)-Sopht-7-*O*-G; (33) Sin,Fer-Gent; (34) triSin-Gent; (35) diSin,Fer-Gent; (36) Sin,diFer-Gent. CQA: caffeoylquinic acid; *p*-CoQA: *p*-coumaroylquinic acid; K: kaempferol; Caf: caffeoyl; Sopht: sophorotrioside; Soph: sophoroside; Sin: sinapoil; G: glucoside; Q: quercetin; R: rhamnoside; Gent: gentiobioside; Fer: feruloyl.

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