An EPR and Antioxidant Study of Anthogenol

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Anthogenol is a grapeseed extract of polyphenols made by the company owned by Prof.Jack Masquelier. It was thought worthy of EPR and antioxidant study for historical as well scientific reasons. The extraction method is unknown, and the EPR line is compared with that of a similar extract made by a known method.

1. Introduction

Prof. Jack Masquelier was the discoverer of the oligomers of the catechins found in peanut skins, Mediterranian pine bark, and grapeseed skins. He researched their healthbenefits on the human body, and first marketed a grapeseed extract in France unde the name Endotelon [1].. He named the conglomeate of these catechin oligomers Pycnogenols, and a grapeseed extract was marketed under the name PycnoGenol, with his picture appearing on the packet. In a series of court cases, he lost the right to this name, which now belongs to the company Horphag, which markets a Mediterranian pine bark extract under this name. In earlier unreported work, we looked at the EPR spectra from the free radicals on the phenolics in Endotelon and PycnoGenolEach consisted of a single almost structureless line at g = 2 about 4 Gauss wide.Subsequently we became involved in measuring the growth of the polyphenols in grapeseeds, using EPR, and a known method of extraction [2]. Since Anthogenol is comparatively recent, we thought it worthwhile to investigate it further.

2. Materials and methods

For the polyphenol growth measurements, the grapeseeds were crushed and freeze dried, and the polyphenols extracted with ethanol, which was then evaporated. The pure Anthogenol was obtained by request from Prof. Masquelier's company. For the EPR work, each sample was placed in its own special quartz EPR tube (Wilmad). For the first sample, a Varian E-12 X-band (~9.1 GHz) spectrometer was used: for the second, a Bruker EPR spectrometer (~9.4 Ghz). Measurements were made at room temperature and at ~120K. The antioxidant efficiency of the first sample was not measured. Anthogenol antioxidant efficiency was measured by a method involving the generation of free radicals, which are then destroyed by the substance being tested [3].

2. Results

The EPR spectra of the Anthgenol is shown in Fig,1, and that for the grapeseed extract in Fig.2, both at room temperature. They are similar, having a visible wing structure on the low magnetic field side, but not identical. At low temperature, the grapeseed extract showed a Cu2+ signal which vanished on pssing to room temperature, but the Anthogenol did not. The Anthogenol showed a signal at g~ 4, attributed to Fe3+, but the other sample did not.
The antioxidant efficiency of Anthogenol was measured as 75% with a 3% error: calibrations with vitamin E and vitaminC gave 100% and 80% repectively with the same error.

3.1 Discussion

The EPR sectra of the commercial grapeseed extracts has changed over the years, presumably due to changes in extraction procedure. In the Anthogenol, iron vessls may be involved. The antioxidant efficiency of Antogenol is comparable to that of other commecial phenolic extracts.

Acknowledgements

The authors thank most sincerely Dr Irwin Cheah, School of Chemistry, Monash University Clayton, for the antioxidant efficiency measurements.

References

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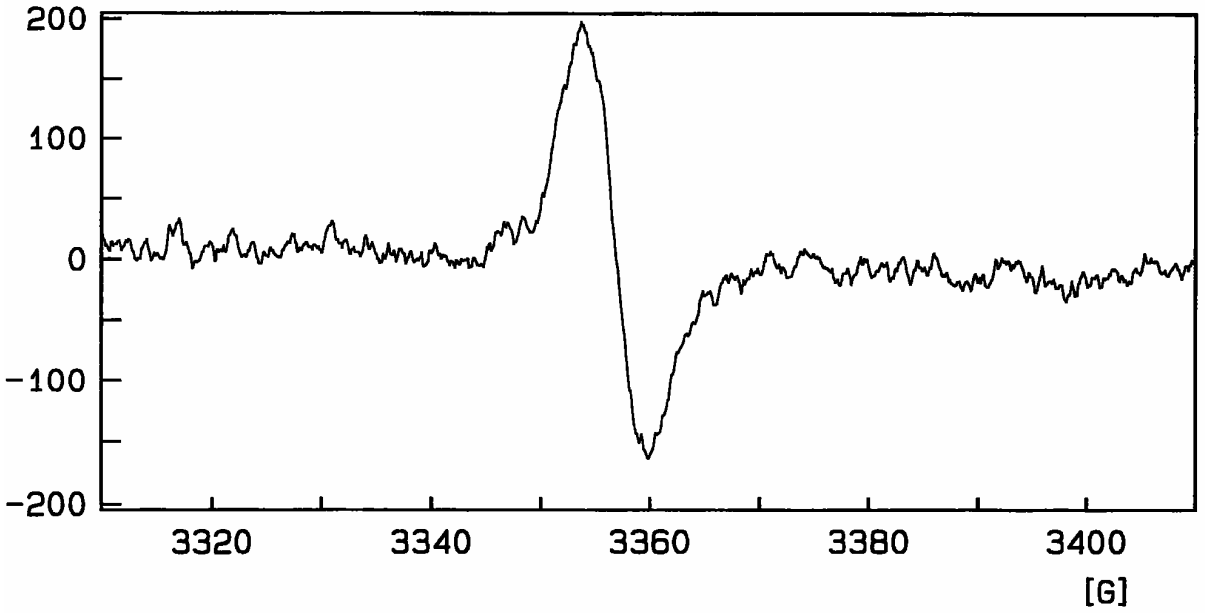
Figure Captions

Fig.1 EPR spectrum of Anthogenol. Horizontal axis: Steady magnetic field (Gauss).

Fig.2 Epr spectrum of grapeseed extract (non-commercial).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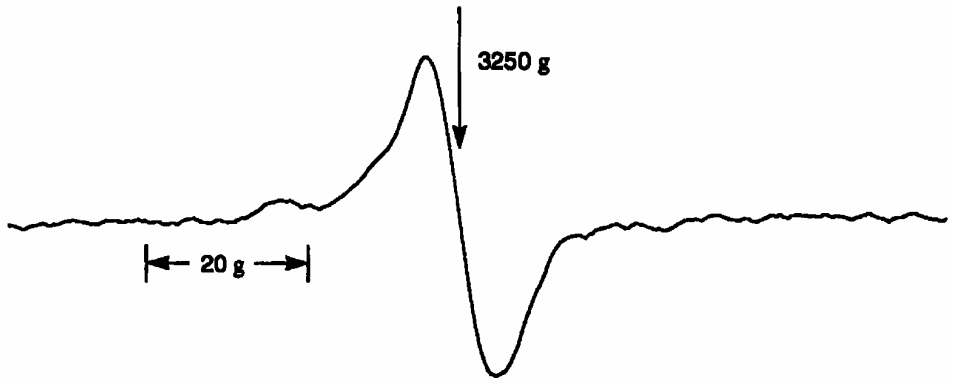
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