

Associations of Flavonoids and Natural Dyes in the Control of Lipidic Metabolism

Kelly. F. R. SANTOS¹, Tânia T. OLIVEIRA^{1*}, Tanus J. NAGEM²,
Aloisio S. PINTO³ and Paulo C. STRINGHETA⁴

¹ Departamento de Bioquímica e Biologia Molecular da Universidade Federal de Viçosa,
36571-000, Viçosa, Minas Gerais, Brasil.

² Departamento de Química da Universidade Federal de Ouro Preto,
35400-000, Ouro Preto, Minas Gerais, Brasil.

³ Depto. de Veterinária da Universidade Federal de Viçosa, 36571-000, Viçosa, Minas Gerais, Brasil.

⁴ Depto. de Tecnologia de Alimentos da Univ. Federal de Viçosa, 36571-000, Viçosa, Minas Gerais, Brasil.

RESUMEN. "Asociaciones de flavonoides y colorantes naturales en el control del metabolismo lipídico". El presente trabajo estudia el efecto de rutina y naringenina, administradas en forma aislada o asociadas con antocianina y monascus, sobre el metabolismo lipídico de ratas. Para eso, dichos compuestos fueron disueltos en propilenglicol y suministrados dos veces por vía intraperitoneal a la dosis de 5 mg/kg de peso. La primera dosis fue administrada inmediatamente después de la administración de Tritón, sustancia responsable por la inducción de la hiperlipidemia, y la segunda veinte horas después. Después de 43 horas de la administración de la primera dosis y del Triton, se extrajo sangre y se determinó el contenido de colesterol total, colesterol-HDL y triacilglicéridos. Los resultados han evidenciado mayores porcentajes de reducción del colesterol para naringenina + monascus y naringenina + antocianina, rutina + monascus y rutina + antocianina. En el caso del colesterol-HDL los mejores resultados fueron obtenidos con naringenina sola y finalmente para los triacilglicéridos las mayores reducciones fueron halladas con naringenina, naringenina + monascus y rutina + antocianina.

SUMMARY. The present work evaluates the effects of rutin and naringenin, isolated and in association with anthocyanin and monascus, on lipidic metabolism of rats. These compounds were dissolved in propylene glycol and administered by intraperitoneal route in two doses of 5mg/kg of body weight. The first dose was administered together with the Triton, compound responsible for induction of hyperlipidaemia, and the second, twenty hours later. After forty three hours of the first dose and Triton administration, the blood was retreat and cholesterol, HDL-cholesterol, and triacylglycerols were dosed. Results evidence the largest percentual reduction of cholesterol for naringenin + monascus, naringenin + anthocyanin, rutin + monascus and rutin + anthocyanin. On the other hand, for HDL-cholesterol, the best results were obtained with naringenin alone. Finally, the best reduction of triacylglycerols levels was showed for naringenin, naringenin + monascus and rutin + anthocyanin associations.

INTRODUCTION

Being myocardial infarction one of the main causes of death in industrialized countries, research in the last four decades has sought to identify situations which may lead to an increase in the probability of occurrence of coronary thrombosis.

Preventive measures involving mainly tests with several vegetal and synthetic substances have also been investigated¹. Research with rabbits which received glycosylated anthocyanin to the rate of 6g/Kg (orally) or 500mg/Kg (intraperitoneally) did not suffer any change in

blood pressure, while diuretic and vasodilation effects² were observed for the 25 mg/Kg dose.

Blood circulation disorders were treated with pharmaceutical preparations containing anthocyanin³. It was also observed their participation in the process of formation of prostaglandins and endoperoxides such as prostacyclins, which inhibit platelet aggregation in the prevention of thrombosis⁴.

Another class of natural dyes, monacolins, presented strong inhibitory action in the synthesis of cholesterol "in vivo"⁵⁻⁹.

Some flavonoids, such as biochanin A, for-

PALABRAS CLAVE: Antocianina, Colesterol, Colesterol-HDL, hiperlipidémicos, lipidos, Monascus, Naringenina, Ratas, Rutina, Triacilglicéridos.

KEY WORDS: Anthocyanin, Cholesterol, HDL-Cholesterol, Hyperlipidemics, Lipids, Monascus, Naringenin, Rats, Rutin, Triacylglycerols.

* To whom correspondence should be addressed.