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## ANALYSIS OF RUTIN CONCENTRATION IN DEXERICH LIQUID EXTRACT USING HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

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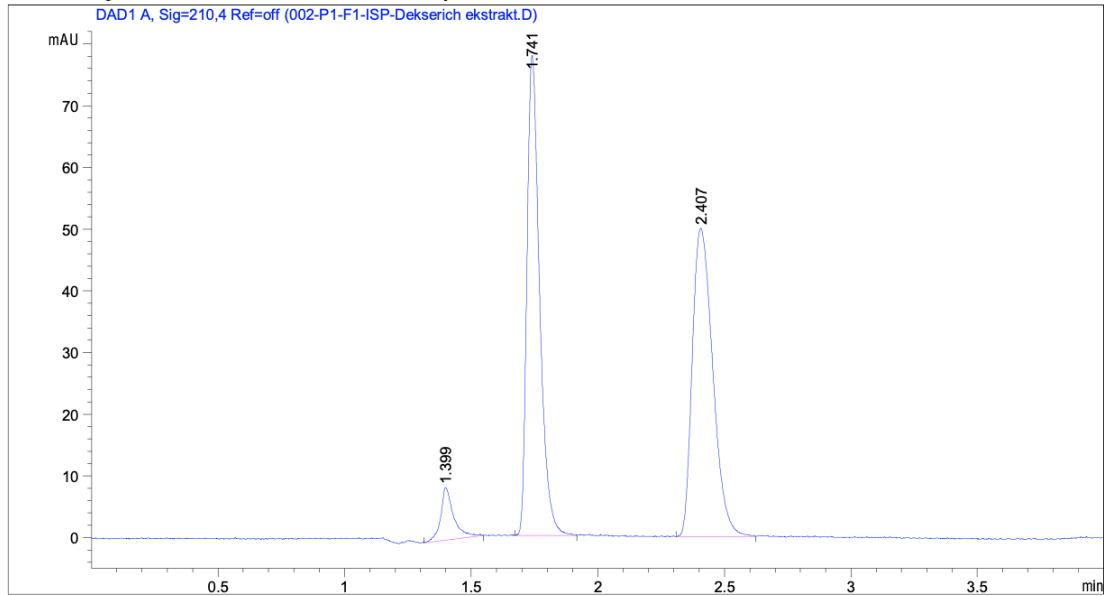
**Abstract.** This study aims to determine the concentration of rutin in Dexerich liquid extract using High-Performance Liquid Chromatography (HPLC). Rutin, a flavonoid with numerous pharmacological properties, is widely present in plants, including those used in herbal preparations like Dexerich. HPLC analysis revealed the presence of rutin in the Dexerich liquid extract at varying concentrations. The results underscore the importance of precise analytical techniques in evaluating the composition of herbal extracts for quality assurance and therapeutic efficacy.

**Keywords:** Rutin, Dexerich, Liquid extract, High-Performance Liquid Chromatography, HPLC.

**Introduction:** Rutin, a flavonoid glycoside, is abundantly found in various plants, including fruits, vegetables, and medicinal herbs. It possesses numerous pharmacological activities such as antioxidant, anti-inflammatory, anti-diabetic, and neuroprotective effects. Rutin has gained attention in herbal medicine due to its potential therapeutic benefits. Dexerich is a liquid herbal extract marketed for its purported health-promoting properties, containing a variety of herbal ingredients, including rutin-rich plants. However, the concentration of rutin in Dexerich has not been extensively studied. High-Performance Liquid Chromatography (HPLC) is a widely used analytical technique for the quantitative determination of various compounds, including flavonoids like rutin. In this study, we aimed to analyze the concentration of rutin in Dexerich liquid extract using HPLC.

**Materials and Methods:** Dexerich liquid extract samples were obtained from a reputable manufacturer. HPLC analysis was performed using a Agilent Technologies' HPLC 1260 Infinity equipped with a 150 mm Zorbax Eclipse XDB-CN. The mobile phase consisted of MeOH and Phosphate bufer 85:15, Rutin standard (purity > 98%) was used for calibration. The HPLC conditions were optimized for the separation and quantification of rutin. The injection volume was 20 microlitr, and the flow rate was 1 ml/min. The detection wavelength was set at 210 nm. Analysis time is 5 minutes.

Results: HPLC analysis revealed the presence of rutin in the Dexerich liquid extract. There is other compounds in the extract also. The retention time of rutin was found to be 1.408 in the standard solution and 1.399 in the tested solution. The concentration of rutin in Dexerich liquid extract was determined to be 0.5056 mg/mL.



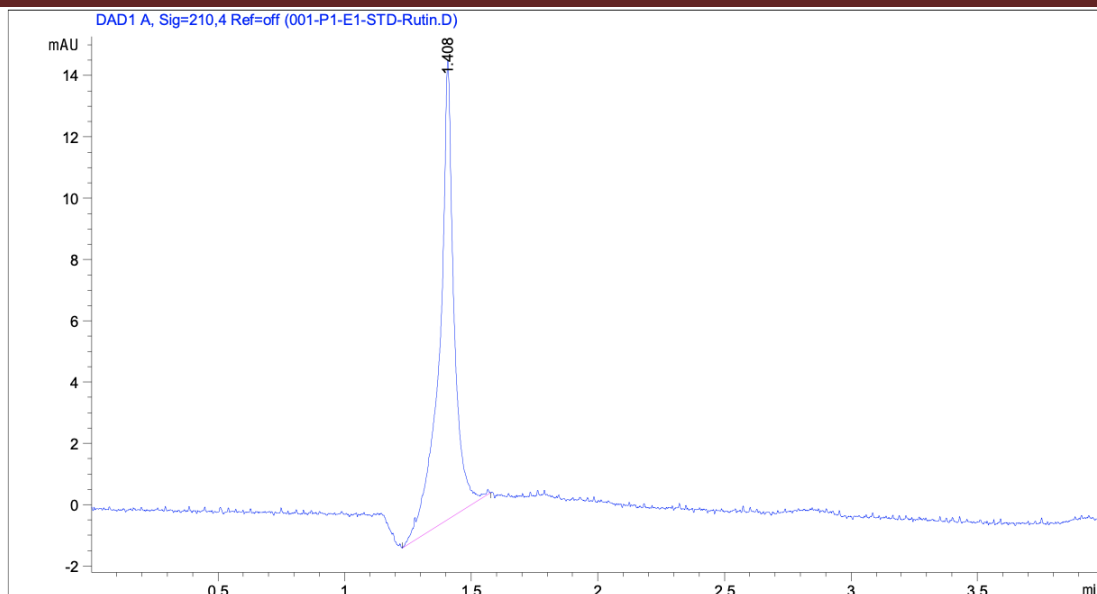
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 Area Percent Report  
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Sorted By : Signal  
 Multiplier : 1.0000  
 Dilution : 1.0000  
 Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=210,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	1.399	BV R	0.0489	30.09850	8.48496	5.1830
2	1.741	BB	0.0524	269.23926	77.72019	46.3629
3	2.407	BB	0.0857	281.38306	49.96651	48.4541

Totals : 580.72081 136.17167



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Sorted By : Signal  
 Multiplier : 1.0000  
 Dilution : 1.0000  
 Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=210,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	1.408	VV R	0.0529	59.53034	14.96611	100.0000

Totals : 59.53034 14.96611

**Discussion:** The presence of rutin in Dexerich liquid extract confirms the utilization of rutin-rich plants in its formulation. The determined concentration of rutin provides valuable information regarding the potential bioactivity of Dexerich. Rutin, with its well-documented pharmacological properties, may contribute to the therapeutic effects attributed to Dexerich. However, further studies are warranted to elucidate the exact contribution of rutin and other constituents to the overall efficacy of Dexerich.

**Conclusion:** In conclusion, this study demonstrates the presence of rutin in Dexerich liquid extract using HPLC analysis. The determined concentration of rutin provides important insights into the composition and potential therapeutic effects of Dexerich. HPLC serves as a valuable analytical tool for the quality control of herbal extracts, ensuring their potency and consistency.

**Bibliography**

1. Kwon YI, Vatter DA, Shetty K. Evaluation of clonal herbs of Lamiaceae species for management of diabetes and hypertension. *Asia Pac J Clin Nutr.* 2006;15(1):107-118.

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2. Lee YS, Kim SY, Lee SH, Kim JY, Kim CJ, Oh YS, Kim YS, Lee HK. Protective effect of onion extract on bleomycin-induced cytotoxicity and genotoxicity in human lymphocytes. *J Environ Biol.* 2008;29(2):199-204.
  3. Li J, Huang H, Feng M, Zhou W, Shi X, Zhou P, Li Y, Zhang Z. Separation and identification of flavonoids in the traditional Chinese medicine-Huangqin by off-line two-dimensional high-performance liquid chromatography coupled with tandem mass spectrometry. *J Chromatogr B Analyt Technol Biomed Life Sci.* 2007;850(1-2):168-175.
  4. Pumthong G, Asawanonda P, Leelapornpisid P. The efficacy of topical (3%) green tea ointment on acute radiation skin reaction in breast cancer patients: a randomized controlled trial. *J Med Assoc Thai.* 2013;96(5):605-612.
  5. Sarker SD, Nahar L. Natural medicine: the genus *Angelica*. *Curr Med Chem.* 2004;11(11):1479-1500.