

长白山区几种植物油中脂肪酸成分的研究

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摘要 我省长白山区野生植物资源丰富,为了及早开发利用,我们筛选了几种植物油进行药效学试验,发现它们都具有明显的降低胆固醇和改善脂肪肝等作用,本文仅对几种植物种子中所含脂肪酸成分进行报道。

关键词 红松子 月见草子 琉璃苣 水飞蓟

1 材料

海松子,异名松子(《海本草》),松子仁(《本草衍义》)、新罗松子《纲目》),为红松 *Pinus koraiensis* Sieb. et Zucc. 的种子。月见草 *Oenothera biennis* L. 为柳叶菜科植物,俗名夜来香,待宵草 *Everning primrose*。琉璃苣 *Borago officinalis* L. 是近年来由国外引进的一种 γ -亚麻酸含量最高的植物。水飞蓟 *Silybum marianum*, 其种子油尚未广泛开发利用。以上4种植物种子均采自吉林省长白山地区,分别以石油醚,索氏提取器提取制得脂肪油。

2 方法

2.1 样品的前处理: 将上述脂肪酸按文献〔程志清,等,分析测试通报,1988,8(6):11〕进行甲酯化处理;用移液管吸取油0.5ml,置于25ml容量瓶中,加入乙醚-正己烷(2:1)2.5ml,甲醇2.5ml,0.8mol/L KOH-MeOH液2.5ml,摇匀,静置5min,加蒸馏水至刻度。吸取上层FA-Me,待做GC分析。

2.2 GC条件: 色谱柱HP-25M'OV-101石英毛细管柱;柱前压68.95kPa;柱温:100~260℃按10℃/min程序外温;进样器温度250℃,载气He;进样量0.1ml。

3 结果与讨论

3.1 测定结果: 见表。

表 样品测定结果

脂肪酸名称	松子油	月见草油	琉璃苣油	水飞油
十六(烷)酸	5.308	5.958	12.321	9.344
十八(烷)酸	2.125	1.727	4.63	5.681
顺式十八烯-9-酸	27.453	7.633	22.282	37.199
顺式十八碳二烯-9,12-酸	46.224	76.635	36.230	45.529
十八碳三烯-5,9,12-酸	0.319	8.463	19.921	0.313
十八碳二烯-5,9-酸	2.289	—	—	—
十八碳三烯-5,9,12-酸	15.317	—	4.362	0.139
二十碳三烯-5,11,14-酸	0.434	—	—	0.395

3.2 讨论: 据文献记载,红松子具有养液、息风、润肺、滑肠等功效,可治风痹、头眩、燥咳、吐血、便秘等症,作为坚果食用已有悠久历史,但近几年产品也有部分积压。月见草种子早在17世纪就因其良好的药效被欧洲人誉为“王室御药”,近代已被确认为防治心血管疾病的良药。琉璃苣被发现是目前唯一 γ -亚麻酸含量最高的一种植物,是合成前列腺素E₁前体的最好原料。水飞蓟的黄酮部分已被利用于临床治疗肝病,其种子油尚未广泛利用。作者报道这几种植物种子油中所含脂肪酸的成分及含量,旨在于对长白

山区的野生资源进一步深加工提供理论依据,以便获得更大的经济效益和社会效益。

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ABSTRACTS OF ORIGINAL ARTICLES

Studies on the Chemical Constituents of Balsampear (*Momordica charantia*)

Chang Fenggang

Four compounds were isolated from 80% EtOH extract of the fruits of *Momordica charantia* L., and identified by chemical reactions and spectral data (UV, IR, ^1H NMR, ^{13}C NMR and MS). They were momordicoside F1, I, G and daucosterol. This was the first reported isolation of daucosterol from this plant.

(Original article on page 507)

Studies on the Chemical Constituents of Mashaqianhu

(*Peucedanum mashaense*)

Huang Ping, Lu Chunqiong, Lai Maoxiang, et al

Six compounds isolated from the root of *Peucedanum mashaense* Shan et Sheh, were identified as deltoin, marmesin, phellopterin, oxypeucedanin hydrate, bergapten and β -sitosterol on the basis of physical and chemical properties and spectral data.

(Original article on page 511)

Determination of γ -Aminobutyric Acid in Manyinflorescenced Sweetvetch

(*Hedysarum polybotrys*) and Its Granular Preparation

Zhou Lihong, Hu Gengyong

Isolation of γ -aminobutyric acid in *Hedysarum polybotrys* was accomplished by HPT-LC, and the content of the said component in the herb and its preparation determined by dual wave length scanning at λ_S 530 nm and λ_R 700 nm. The method was simple and accurate.

(Original article on page 518)

Studies on the Fatty Acid Composition of Seed Oil of Several Plants in Changbaishan Region

Yang Shijie, Chen Guangrong, Li Qianmei, et al

Fatty acid composition and content in seed oil of plants in Changbaishan region was studied by gas chromatography and reported.

(Original article on page 519)

Determination of Tanshinone II_A in "Prostate Healthcare Bag" by TLC Scanning

Li Xiangyang, Tu Wanqian

TLC scanning technique was used for the determination of tanshinone II_A in "Prostate Healthcare Bag" at λ_S = 470 nm, and λ_R = 620 nm. This method is simple and highly sensitive, with an average recovery of 97.45% and a variation coefficient of 1.28%.

(Original article on page 520)

Biological Effect of Fiveleaf Gynostemma (*Gynostemma pentaphyllum*) on Thorny Nude Belly Water Flea —A Model for the Screening of Antiaging

Chen Qingyao, Ji Yuantang, Sun Yulin, et al