

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Frangula purshiana*

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|----------------|------------|----------|----------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 | FIBER(CRUDE) | Bark | | 310000.0 | 2.339823678190987 | -- |
| 53 | BETA-CAROTENE | Bark | 13.0 | 46.0 | 2.1374028017190314 | -- |
| 15 | FIBER | Bark | | 310000.0 | 1.4973444643886513 | Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp. |
| 0 | FIBER(DIETARY) | Bark | | 560000.0 | 1.1932784648463484 | -- |
| 6 | ANTHRAQUINONES | Bark | 60000.0 | 100000.0 | 1.0 | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 0 | FAT | Bark | 8864.0 | 32000.0 | 0.9470044614826844 | -- |
| 0 | PROTEIN | Bark | 25207.0 | 91000.0 | 0.43752942985999416 | -- |
| 0 | CARBOHYDRATES | Bark | 224093.0 | 809000.0 | 0.33938102144232346 | -- |
| 0 | WATER | Bark | | 723000.0 | 0.24192319620065653 | -- |
| 0 | PROTEIN | Seed | | 250000.0 | 0.14414237103378544 | Earle, F. R., Glass, C. A., Geisinger, G. C., Wolff, I. A., Jones, Q. 1960. Search for New Industrial Oils. IV. J. Amer. Oil Chem. Soc. 37: 440-. Northern Regional Research Lab ARS USDA Peoria, IL, USA. |
| 65 | MAGNESIUM | Bark | 440.0 | 1590.0 | -0.10911131301072557 | -- |
| 2 | COBALT | Bark | 3.2 | 11.6 | -0.18574693845267193 | -- |
| 0 | ASH | Bark | 18559.0 | 67000.0 | -0.3419190329694244 | -- |
| 28 | CALCIUM | Bark | 4100.0 | 14800.0 | -0.3701186348289897 | -- |
| 1 | SODIUM | Bark | 26.0 | 93.0 | -0.408100271312514 | -- |
| 5 | ALUMINUM | Bark | 27.0 | 99.0 | -0.42073897270651045 | -- |
| 14 | POTASSIUM | Bark | 1103.0 | 3980.0 | -0.43722012313816594 | -- |
| 60 | SELENIUM | Bark | 0.3 | 1.1 | -0.4642594780283318 | -- |
| 24 | CHROMIUM | Bark | 0.2 | 0.6 | -0.5240392018021011 | -- |
| 4 | PHOSPHORUS | Bark | 158.0 | 570.0 | -0.5349997224798418 | -- |
| 39 | NIACIN | Bark | 8.0 | 29.0 | -0.5491524863663554 | -- |

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|------------------|----------------------------------------------------|----------------|---------|----------|---------------------|-----------------------------------------------------------------------------------------|
| 0 | SUGARS | Bark | 13850.0 | 50000.0 | -0.5773502691896257 | -- |
| 31 | THIAMIN | Bark | | 0.0 | -0.6585046078685182 | Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp. |
| 14 | MANGANESE | Bark | 0.4 | 1.4 | -0.6672097230657966 | -- |
| 0 | THIAMINE | Bark | | 0.0 | -0.7500000000000002 | -- |
| 0 | KILOCALORIES | Bark | | 2370.0 | -0.7511810552670951 | Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp. |
| 6 | IRON | Bark | 6.4 | 23.0 | -0.8041825931162928 | -- |
| 4 | TIN | Bark | 1.4 | 5.1 | -0.9625249451887514 | -- |
| 112 | ASCORBIC-ACID | Bark | | 0.0 | -1.0104899665727316 | -- |
| 15 | RIBOFLAVIN | Bark | | 0.0 | -1.033653783963848 | -- |
| 0 | RHAMNUSTOXIN | Plant | | | | -- |
| 0 | CASCAROSIDE-F | Bark | | | | -- |
| 24 | ALOE-EMODIN | Tissue Culture | | | | -- |
| 6 | MYRISTIC-ACID | Plant | | | | -- |
| 0 | 10-HYDROXYALOIN-A | Bark | | | | -- |
| 0 | 1,6,8-TRIHYDROXY-3-METHYL-9-GLUCOSYL-ANTHRAQUINONE | Plant | | | | -- |
| 0 | BICASCAROSIDE-BB | Bark | | | | -- |
| 58 | EMODIN | Bl | | | | -- |
| 58 | EMODIN | Tissue Culture | | | | -- |
| 0 | RHAMNOL | Plant | | | | -- |
| 0 | CASCAROSIDE-E | Bark | | | | -- |
| 0 | DEOXYBARBALOIN | Bark | | | | -- |
| 58 | EMODIN | Bark | | | | -- |
| 0 | RESIN | Plant | | | | -- |
| 0 | CASCAROSIDE-D | Bark | | | | -- |

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|------------------|----------------------------------------|----------------|---------|----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15 | MALIC-ACID | Plant | | | | -- |
| 0 | PHYSICION-ANTHRONE | Bark | | | | -- |
| 0 | CHRYSOPHANOL-8-O-BETA-D-GLUCOSIDE | Bark | | | | -- |
| 0 | QUEBRACHOL | Plant | | | | -- |
| 6 | BARBALOIN | Bark | | | | -- |
| 0 | CASCAROSIDE-C | Bark | | | | -- |
| 0 | PHYSICION-ANTHRONE | Tissue Culture | | | | -- |
| 35 | TANNIN | Plant | | | | -- |
| 10 | CHRYSOPHANOL | Bark | | | | -- |
| 0 | CHRYSOPHANIC-ACID-PHYSICION-DIANTHRONE | Tissue Culture | | | | -- |
| 0 | BICASCAROSIDE-AD | Bark | | | | -- |
| 0 | PURSHIANIN | Plant | | | | -- |
| 0 | CASCAROSIDE-B | Bark | | | | -- |
| 27 | LINOLEIC-ACID | Plant | | | | -- |
| 0 | PHYSICION-8-GLUCOSIDE | Plant | | | | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 41 | TANNIC-ACID | Plant | | | | -- |
| 6 | CHRYSOPHANIC-ACID | Plant | | | | -- |
| 0 | CHRYSOPHANIC-ACID-DIMER | Bark | | 840.0 | | -- |
| 0 | BICASCAROSIDE-AC | Bark | | | | -- |
| 1 | CASCAROSIDE-A | Bark | | | | -- |
| 5 | PHYSICION | Tissue Culture | | | | -- |
| 0 | TANNINS | Bark | | | | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 0 | SYRINGIN-ACID | Plant | | | | -- |

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|------------------|------------------------------|----------------|---------|----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 | CHRYSALOIN | Bark | | | | -- |
| 0 | CHRYSOPHANIC-ACID-DIANTHRONE | Tissue Culture | | | | -- |
| 0 | BICASCAROSIDE-AB | Bark | | | | -- |
| 0 | BICASCAROSIDE-DD | Bark | | | | -- |
| 0 | ISOEMODIN | Plant | | | | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 5 | PHYSICION | Bark | | | | -- |
| 0 | RESINS | Bark | | | | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 0 | CHRYSOPHANIC-ACID-ANTHRONE | Tissue Culture | | | | -- |
| 0 | BICASCAROSIDE-AA | Bark | | | | -- |
| 0 | BICASCAROSIDE-CD | Bark | | | | -- |
| 1 | FRANGULAEMODIN | Bark | | | | -- |
| 6 | CHRYSOPHANIC-ACID | Bark | | | | -- |
| 4 | SILICON | Bark | | | | -- |
| 0 | CASCAROSIDES | Bark | 40000.0 | 65000.0 | | -- |
| 2 | CHRYSOPHANIC-ACID-9-ANTHRONE | Plant | | | | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 0 | ANTHRANOL | Bark | | | | Mary, N. Y., Christensen, B. V., Beal, J. L. 1956. A Paper Chromatographic Study of Aloe, Aloin and Cascara sagrada. J. Amer. Pharm. Ass. Sci. Ed., 45: 229-232. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|-----------------------------------|----------------|---------|----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 | PALMIDINS | Bark | | | | Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989. |
| 12 | ALOIN | Plant | | | | -- |
| 0 | BICASCAROSIDE-CC | Bark | | | | -- |
| 1 | FRANGULIN | Bark | | | | -- |
| 0 | EMOSIN-OXANTHRONE | Plant | | | | Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp. |
| 6 | SYRINGIC-ACID | Plant | | | | Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp. |
| 0 | CASCARIN | Plant | | | | -- |
| 6 | CHRYSOPHANIC-ACID | Tissue Culture | | | | -- |
| 0 | ALOE-EMODIN-DIMER | Bark | | 1300.0 | | -- |
| 0 | OXANTHRONE | Plant | | | | -- |
| 0 | 11-DEOXYBARBALOIN | Bark | | | | -- |
| 0 | ALOE-EMODIN-8-MONO-BETA-GLUCOSIDE | Bark | | | | -- |
| 0 | BICASCAROSIDE-BD | Bark | | | | -- |
| 0 | EMODIN-ANTHRONE | Bark | | | | -- |
| 58 | EMODIN | Plant | | | | Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989. |
| 1 | CASANTHRANOL | Bark | | | | -- |
| 0 | CASSIAMIN-C | Bark | | 120.0 | | -- |

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|------------------|----------------------------------|----------------|---------|----------|--------|-------------------|
| 0 | ALOE-EMODIN-8-O-BETA-D-GLUCOSIDE | Bark | | | | -- |
| 0 | 10-HYDROXYALOIN-B | Bark | | | | -- |
| 24 | ALOE-EMODIN | Bark | | | | -- |
| 0 | BICASCAROSIDE-BC | Bark | | | | -- |
| 77 | ZINC | Bark | | | | -- |
| 0 | EMODIN-ANTHRONE | Tissue Culture | | | | -- |