



## Certificate of Analysis

**Bighorn Botanicals, Inc**  
113 Pilgrim Creek Rd  
Noxon, MT 59853,

**Order ID:** 18112002  
**Lab Sample #:** 42641  
**Receive Date:** 11/20/2018 10:47:54 AM

**Sample Description:** Montana Yew Tip Capsules

**Sample Lot #:** YCR2218  
**Receive Condition:** Good  
**Storage Condition:** Ambient  
**Disposal Instructions:** Dispose after 30 days

<u>Chemical Analysis</u>	<u>Result</u>	<u>Specification</u>	<u>Analyst</u>	<u>Date</u>	<u>Method</u>
5-MTH Folate	0.1 mcg/cap	Report	ThereseVacek	11/27/2018	MML170.05.02.01
Aluminum	18.170 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML180.04.02
Barium	24.070 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML210.07
Beta Carotene	0.1 mcg/cap	Report	ThereseVacek	12/10/2018	MML170.06.02
Biotin	3.2 mcg/cap	Report	ThereseVacek	11/27/2018	MML170.05.02
Boron	4.89 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML210.07
Caffeine	0.470 mcg/cap	Report	ThereseVacek	11/27/2018	MML170.05.01
Calcium	1.7 mg/cap	Report	AmandaMulcahy	11/20/2018	MML180.05.01
Chromium	0.11 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML210.07
Copper	0.158 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML210.07
Cyanocobalamin	5 mcg/cap	Report	ThereseVacek	11/27/2018	MML170.05.02
Folic acid	<1.278 mcg/cap	Report	ThereseVacek	11/27/2018	MML170.05.02.01
Beta-Sitosterol	1.320 mg/cap	Report	ThereseVacek	11/29/2018	MML190.01.08
Brassicasterol	0.000 mg/cap	Report	ThereseVacek	11/29/2018	MML190.01.08
Campesterol	0.000 mg/cap	Report	ThereseVacek	11/29/2018	MML190.01.08
Cholesterol	2.060 mg/cap	Report	ThereseVacek	11/29/2018	MML190.01.08
Stigmasterol	0.000 mg/cap	Report	ThereseVacek	11/29/2018	MML190.01.08
Total Sterols	3.370 mg/cap	Report	ThereseVacek	11/29/2018	MML190.01.08
Iodine	0.738 mcg/cap	Report	AmandaMulcahy	11/26/2018	MML210.07
Iron	33.700 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML180.04.09
Magnesium	0.5 mg/cap	Report	AmandaMulcahy	11/20/2018	MML180.05.02
Manganese	524.90 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML210.07
Molybdenum	0.042 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML210.07
Niacinamide	<4.408 mcg/cap	Report	ThereseVacek	11/26/2018	MML170.05.01
Nickel	0.127 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML210.07
Nicotinic acid	<4.39 mcg/cap	Report	ThereseVacek	11/26/2018	MML170.05.01
Pantothenic acid	1.6 mcg/cap	Report	ThereseVacek	11/27/2018	MML170.05.02
Phosphorous	287.390 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML210.07
Potassium	2.33 mg/cap	Report	AmandaMulcahy	11/20/2018	MML180.05.03
Pyridoxal-5-phosphate	<10.73 mcg/cap	Report	ThereseVacek	11/26/2018	MML170.05.01
Quercetin	<15.22 mcg/cap	Report	ThereseVacek	11/29/2018	MML170.07.15
Riboflavin	2.0 mcg/cap	Report	ThereseVacek	11/26/2018	MML170.05.01
Rutin	1.8 mcg/cap	Report	ThereseVacek	11/29/2018	MML170.07.15
Selenium	< 1.0 ppb	Report	AmandaMulcahy	11/20/2018	MML210.07
Sodium	< 0.1 ppm	Report	AmandaMulcahy	11/20/2018	MML180.05.04
Thiamine	<4.14 mcg/cap	Report	ThereseVacek	11/26/2018	MML170.05.01



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Vitamin A acetate	<0.379 mcg/cap	Report	ThereseVacek	11/28/2018	MML170.06.01
Vitamin A palmitate	<2.198 mcg/cap	Report	ThereseVacek	11/28/2018	MML170.06.01
Vitamin B6	2.1 mcg/cap	Report	ThereseVacek	11/26/2018	MML170.05.01
Vitamin C	0.1 mcg/cap	Report	ThereseVacek	11/26/2018	MML170.05.03
D3	0.1 mcg/cap	Report	ThereseVacek	11/28/2018	MML170.06.01
Vitamin E Acetate	2.6 mcg/cap	Report	ThereseVacek	11/28/2018	MML170.06.01
Vitamin E Succinate	<4.02 mcg/cap	Report	ThereseVacek	11/29/2018	MML170.06.01
Vitamin K1	0.120 mcg/cap	Report	ThereseVacek	12/4/2018	MML170.06.01
Vitamin K2-4	0.590 mcg/cap	Report	ThereseVacek	12/4/2018	MML170.06.01
Vitamin K2-7	0.160 mcg/cap	Report	ThereseVacek	12/4/2018	MML170.06.01
Zinc	27.60 mcg/cap	Report	AmandaMulcahy	11/20/2018	MML180.05.08

### Method References

**Method #** MML170.05.01      **Desc:** Vitamin B-Alpha/Caffeine/Theacrine

**Instrument** HPLC

**Reference** Sather, K and Vernig, T. Determination of Caffeine and Vitamin B6 in Energy Drinks by HPLC Concordia College Journal of Analytical Chemistry 2 (2011), 84-91

**Method #** MML170.05.02      **Desc:** Vitamin B-Beta

**Instrument** HPLC

**Reference** Supelco Application Note 148 Separating Water-Soluble Vitamins by Reversed Phase HPLC Using Discovery C18 Column 2000

**Method #** MML170.05.02.01      **Desc:** Folic Acid

**Instrument** HPLC

**Reference** Supelco Application Note 148 Separating Water-Soluble Vitamins by Reversed Phase HPLC Using Discovery C18 Column 2000

**Method #** MML170.05.03      **Desc:** Vitamin C

**Instrument** HPLC

**Reference** Mitic et al. Rapid and reliable HPLC method for the determination of vitamin C in pharmaceutical samples Trop. J. Pharm. Res., February 2011; 10(1): 105-111 (Modified)

**Method #** MML170.06.01      **Desc:** Fat Soluble Vitamins

**Instrument** HPLC

**Reference** Blake, Christopher J. Status of Methodology for the Determination of Fat-Soluble Vitamins in Foods, Dietary Supplements, and Vitamin Premixes Journal of AOAC International, Volume 90, Number 4, July 2007, pp. 897-910(14)



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**Receive Date:** 11/20/2018 10:47:54 AM

**Method #** MML170.06.02      **Desc:** Carotenoids-Beta Carotene, Lycopene

**Instrument** HPLC

**Reference** Schierle et al.: JMethod for the Determination of  $\beta$ -Carotene in Supplements and Raw Materials by RP-LC: Single Laboratory Validation Journal of AOAC International Vol. 87, No. 5, 2004

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**Method #** MML170.07.15      **Desc:** Bioflavonoids-Quercetin/Naringin/Huperzine

**Instrument** HPLC

**Reference** Phani et al. Quantitative Analysis of Quercetin in Natural Sources by RP-HPLC Int. J. of Res. In Pharm. And Biomed. Sci. Jul - Sep 2010, Vol. 1 (1) 19-22

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**Method #** MML180.04.02      **Desc:** Aluminum

**Instrument**

**Reference**

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**Method #** MML180.04.09      **Desc:** Iron

**Instrument** Flame AA

**Reference** EPA 6020 (Modified)

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**Method #** MML180.05.01      **Desc:** Calcium

**Instrument** Flame AA

**Reference** EPA 215.2 (Modified)

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**Method #** MML180.05.02      **Desc:** Magnesium

**Instrument** Flame AA

**Reference** EPA 242.1 (Modified)

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**Method #** MML180.05.03      **Desc:** Potassium

**Instrument** Flame AA

**Reference** EPA 258.1 (Modified)

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**Method #** MML180.05.04      **Desc:** Sodium

**Instrument** Flame AA

**Reference** EPA 273.1 (Modified)



**MISSION  
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LABORATORIES

PO Box 606  
Arlee, MT 59821  
p 406.726.5227 f 406.726.5887  
www.missionmountainlabs.com

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**Order ID:** 18112002  
**Lab Sample #:** 42641  
**Receive Date:** 11/20/2018 10:47:54 AM

**Method #** MML180.05.08      **Desc:** Zinc

**Instrument** Flame AA

**Reference** EPA 289.2 (Modified)

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**Method #** MML190.01.08      **Desc:** Free Sterols

**Instrument** GC-MS

**Reference** AOAC Official Method 994.10 - Cholesterol in Foods

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**Method #** MML210.07      **Desc:** Determination of Nutrients

**Instrument** ICP-MS

**Reference** EPA 200.8 (Modified)

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### Approval

**Approved By:** KimberlyNuccio Authorized Reviewer

**Approved Date:** 12/18/2018

**Laboratory Location:** 82892 US Hwy 93 N, Ravalli, MT 59863

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## Certificate of Analysis

**Bighorn Botanicals, Inc**  
113 Pilgrim Creek Rd  
Noxon, MT 59853,

**Order ID:** 18112002  
**Lab Sample #:** 42642  
**Receive Date:** 11/20/2018 10:47:54 AM

**Sample Description:** Montana Yew Tip Tincture

**Sample Lot #:** YNB8218  
**Receive Condition:** Good  
**Storage Condition:** Ambient  
**Disposal Instructions:** Dispose after 30 days

<u>Chemical Analysis</u>	<u>Result</u>	<u>Specification</u>	<u>Analyst</u>	<u>Date</u>	<u>Method</u>
5-MTH Folate	0.2 mcg/ml	Report	ThereseVacek	11/27/2018	MML170.05.02.01
Aluminum	0.221 µg/ml	Report	AmandaMulcahy	12/17/2018	MML180.04.02
Barium	0.086 mcg/ml	Report	AmandaMulcahy	12/17/2018	MML210.07
Beta Carotene	<11.281 mcg/ml	Report	ThereseVacek	12/10/2018	MML170.06.02
Biotin	3.300 mcg/ml	Report	ThereseVacek	11/27/2018	MML170.05.03
Boron	2.190 mg/ml	Report	AmandaMulcahy	12/10/2018	MML210.07
Caffeine	0.160 mcg/ml	Report	ThereseVacek	11/27/2018	MML170.05.01
Calcium	16.810 mcg/ml	Report	AmandaMulcahy	11/27/2018	MML180.05.01
Chromium	228.600 mcg/serving	Report	AmandaMulcahy	12/7/2018	MML210.07
Copper	< 1 µg/L	Report	AmandaMulcahy	12/7/2018	MML210.07
Cyanocobalamin	3.880 mcg/ml	Report	ThereseVacek	11/27/2018	MML170.05.02
Folic acid	<4.203 mcg/ml	Report	ThereseVacek	11/27/2018	MML170.05.02.01
Beta-Sitosterol	3.460 mg/ml	Report	ThereseVacek	11/29/2018	MML190.01.08
Brassicasterol	0.000 mg/ml	Report	ThereseVacek	11/29/2018	MML190.01.08
Campesterol	0.000 mg/ml	Report	ThereseVacek	11/29/2018	MML190.01.08
Cholesterol	4.820 mg/ml	Report	ThereseVacek	11/29/2018	MML190.01.08
Stigmasterol	0.000 mg/ml	Report	ThereseVacek	11/29/2018	MML190.01.08
Total Sterols	8.280 mg/ml	Report	ThereseVacek	11/29/2018	MML190.01.08
Iodine	1.110 mcg/ml	Report	AmandaMulcahy	11/26/2018	MML210.07
Iron	< 0.1 mg/ml	Report	AmandaMulcahy	11/27/2018	MML180.04.09
Magnesium	42.794 mcg/ml	Report	AmandaMulcahy	11/27/2018	MML180.05.02
Manganese	1.349 mg/serving	Report	AmandaMulcahy	12/7/2018	MML210.07
Molybdenum	< 1 µg/L	Report	AmandaMulcahy	12/7/2018	MML210.07
Niacinamide	<14.5 mcg/ml	Report	ThereseVacek	11/26/2018	MML170.05.01
Nickel	< 1 µg/L	Report	AmandaMulcahy	12/17/2018	MML210.07
Nicotinic acid	<14.44 mcg/ml	Report	ThereseVacek	11/26/2018	MML170.05.01
Pantothenic acid	2.320 mcg/ml	Report	ThereseVacek	11/27/2018	MML170.05.02
Phosphorous	47.600 mcg/ml	Report	AmandaMulcahy	12/14/2018	MML210.07
Potassium	438.670 mcg/ml	Report	AmandaMulcahy	11/27/2018	MML180.05.03
Pyridoxal-5-phosphate	<35.35 mcg/ml	Report	ThereseVacek	11/26/2018	MML170.05.01
Quercetin	<50.07 mcg/ml	Report	ThereseVacek	11/29/2018	MML170.07.15
Riboflavin	0.350 mcg/ml	Report	ThereseVacek	11/28/2018	MML170.05.01
Rutin	1.6 mcg/ml	Report	ThereseVacek	11/29/2018	MML170.07.15
Selenium	< 1 µg/L	Report	AmandaMulcahy	12/7/2018	MML210.07
Sodium	< 0.1 mg/ml	Report	AmandaMulcahy	11/27/2018	MML180.05.04
Thiamine	<13.6 mcg/ml	Report	ThereseVacek	11/26/2018	MML170.05.01



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**Lab Sample #:** 42642

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Vitamin A acetate	<1.247 mcg/ml	Report	ThereseVacek	11/28/2018	MML170.06.01
Vitamin A palmitate	<7.23 mcg/ml	Report	ThereseVacek	11/28/2018	MML170.06.01
Vitamin B6	0.1 mcg/ml	Report	ThereseVacek	11/26/2018	MML170.05.01
Vitamin C	<0.004 mcg/ml	Report	ThereseVacek	11/27/2018	MML170.05.03
D3	0.006 mcg/ml	Report	ThereseVacek	11/28/2018	MML170.06.01
Vitamin E Acetate	<60.415 mcg/ml	Report	ThereseVacek	11/28/2018	MML170.06.01
Vitamin E Succinate	<13.23 mcg/ml	Report	ThereseVacek	11/29/2018	MML170.06.01
Vitamin K1	<65.24 mcg/ml	Report	ThereseVacek	11/29/2018	MML170.06.01
Vitamin K2-4	<42.07 mcg/ml	Report	ThereseVacek	11/29/2018	MML170.06.01
Vitamin K2-7	<58.402 mcg/ml	Report	ThereseVacek	11/29/2018	MML170.06.01
Zinc	2.108 mg/serving	Report	AmandaMulcahy	12/7/2018	MML180.05.08

### Method References

**Method #** MML170.05.01      **Desc:** Vitamin B-Alpha/Caffeine/Theacrine

**Instrument** HPLC

**Reference** Sather, K and Vernig, T. Determination of Caffeine and Vitamin B6 in Energy Drinks by HPLC Concordia College Journal of Analytical Chemistry 2 (2011), 84-91

**Method #** MML170.05.02      **Desc:** Vitamin B-Beta

**Instrument** HPLC

**Reference** Supelco Application Note 148 Separating Water-Soluble Vitamins by Reversed Phase HPLC Using Discovery C18 Column 2000

**Method #** MML170.05.02.01      **Desc:** Folic Acid

**Instrument** HPLC

**Reference** Supelco Application Note 148 Separating Water-Soluble Vitamins by Reversed Phase HPLC Using Discovery C18 Column 2000

**Method #** MML170.05.03      **Desc:** Vitamin C

**Instrument** HPLC

**Reference** Mitic et al. Rapid and reliable HPLC method for the determination of vitamin C in pharmaceutical samples Trop. J. Pharm. Res., February 2011; 10(1): 105-111 (Modified)

**Method #** MML170.06.01      **Desc:** Fat Soluble Vitamins

**Instrument** HPLC

**Reference** Blake, Christopher J. Status of Methodology for the Determination of Fat-Soluble Vitamins in Foods, Dietary Supplements, and Vitamin Premixes Journal of AOAC International, Volume 90, Number 4, July 2007, pp. 897-910(14)





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**Method #** MML170.06.02      **Desc:** Carotenoids-Beta Carotene, Lycopene

**Instrument** HPLC

**Reference** Schierle et al.: JMethod for the Determination of  $\beta$ -Carotene in Supplements and Raw Materials by RP-LC: Single Laboratory Validation Journal of AOAC International Vol. 87, No. 5, 2004

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**Method #** MML170.07.15      **Desc:** Bioflavonoids-Quercetin/Naringin/Huperzine

**Instrument** HPLC

**Reference** Phani et al. Quantitative Analysis of Quercetin in Natural Sources by RP-HPLC Int. J. of Res. In Pharm. And Biomed. Sci. Jul - Sep 2010, Vol. 1 (1) 19-22

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**Method #** MML180.04.02      **Desc:** Aluminum

**Instrument**

**Reference**

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**Method #** MML180.04.09      **Desc:** Iron

**Instrument** Flame AA

**Reference** EPA 6020 (Modified)

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**Method #** MML180.05.01      **Desc:** Calcium

**Instrument** Flame AA

**Reference** EPA 215.2 (Modified)

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**Method #** MML180.05.02      **Desc:** Magnesium

**Instrument** Flame AA

**Reference** EPA 242.1 (Modified)

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**Method #** MML180.05.03      **Desc:** Potassium

**Instrument** Flame AA

**Reference** EPA 258.1 (Modified)

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**Method #** MML180.05.04      **Desc:** Sodium

**Instrument** Flame AA

**Reference** EPA 273.1 (Modified)



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**Lab Sample #:** 42642  
**Receive Date:** 11/20/2018 10:47:54 AM

**Method #** MML180.05.08      **Desc:** Zinc

**Instrument** Flame AA

**Reference** EPA 289.2 (Modified)

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**Method #** MML190.01.08      **Desc:** Free Sterols

**Instrument** GC-MS

**Reference** AOAC Official Method 994.10 - Cholesterol in Foods

---

**Method #** MML210.07      **Desc:** Determination of Nutrients

**Instrument** ICP-MS

**Reference** EPA 200.8 (Modified)

---

### Approval

**Approved By:** KimberlyNuccio Authorized Reviewer

**Approved Date:** 12/18/2018

**Laboratory Location:** 82892 US Hwy 93 N, Ravalli, MT 59863

---

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