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AOAC Standard Methods for Dietary Supplements and Botanicals

AOAC INTERNATIONAL is an independent, non-profit membership association that brings together method developers from industry, government, and academia to establish voluntary consensus standards and approve AOAC *Official Methods of Analysis*℠ that ensure the quality, safety, and integrity of foods, beverages, dietary supplement ingredients, and finished products. When implemented appropriately, these methods reduce the time needed for development and validation, and the resulting data are scientifically valid per 21 CFR Part 111.

Below is a curated list of First and Final Action AOAC *Official Methods of Analysis*℠ to support dietary supplement and botanical product testing, plus suggested, fit-for-purpose chromatography and chemistry solutions from Waters. An asterisk (*) indicates that Waters technologies are referenced in the method. Where applicable, equivalent, modern systems and solutions are listed.

AOAC Method	Analytes	Sample Matrices	Technique	Suggested Chromatography Systems and Chemistry Solutions
2018.06 **Final Action**	Amino acids	Adult nutritional powders (Extension of scope suggested)	UHPLC-UV	ACQUITY™ UPLC™ H-Class PLUS with PDA or TUV detectors* ACQUITY UPLC BEH™ C_{18} Column, 130 Å, 1.7 µm, 2.1 mm x 150 mm (p/n: 186002353)*, AccQ•Tag™ Ultra Derivatization Kit (p/n: 186003836)*, AccQ•Tag Eluents (p/n: 186003838 and 186003839)*
2016.09 **First Action**	Aloins	*Aloe vera* powdered and liquid raw materials, aloe concentrate liquid products, aloe powder products	HPLC-UV	Arc™ HPLC with PDA or TUV detectors*
2015.11 **First Action**	Chondroitin sulfate	Dietary supplement tablets, capsules, softgels, gel caps, gummies, chewables, liquids, powders, raw materials	HPLC-UV	Arc HPLC with PDA or TUV detectors
2016.16 **First Action**	Curcuminoids	*Curcuma longa* rhizome, extracts, capsules, tablets, tinctures	HPLC-UV	Arc HPLC with PDA or TUV detectors CORTECS™ C_{18} Column, 90 Å, 2.7 µm, 2.1 mm x 30 mm (p/n: 186007364)
2020.05 **Final Action**	Cocoa flavanols and procyanidins	Milk chocolate, baking chocolate, cocoa powder, cocoa liquor, cocoa extract, ready-to-mix dietary supplement powder, dietary supplement powder capsules	UHPLC-FLR	ACQUITY UPLC H-Class PLUS with FLR detector* Torus™ Diol Column, 130 Å, 1.7 µm, 3.0 mm × 100 mm (p/n: 186007611)*, Oasis™ PRiME MCX 6 cc Vac Cartridge, 150 mg Sorbent per Cartridge, 30 µm (p/n: 186008919)*
2018.09 **First Action**	Ginsenosides	*Panax ginseng* and *Panax quinquefolius* powdered raw materials, powdered extracts, tablets, capsule	HPLC-UV	Arc HPLC with PDA or TUV detectors XSelect™ HSS C_{18} Column, 100 Å, 5 µm, 4.6 mm x 150 mm (p/n: 186004773), XSelect HSS C_{18} VanGuard™ Cartridge, 100 Å, 5 µm, 3.9 mm x 5 mm (3/pk) (p/n: 186007856), VanGuard Cartridge Holder (p/n: 186007949)
2017.14 **First Action**	Kratom alkaloids	*Mitragyna speciosa* raw materials, dry extracts, capsules, liquid beverages	HPLC-UV	Arc HPLC with PDA detector

AOAC Method	Analytes	Sample Matrices	Technique	Suggested Chromatography Systems and Chemistry Solutions
2018.04 **First Action**	Nonvolatile ginger constituents	Dietary supplement tablets, capsules, softgels, rhizome powder, dry extract, oleoresin, supplement powder	HPLC-UV	Arc HPLC with PDA detector
2015.12 **First Action**	PDE-5 inhibitors	Dietary supplement tablets, capsules (both content and capsule shells), softgels, liquid drinks, herbal tinctures, botanical powder, botanical extracts	UHPLC-HRMS	ACQUITY UPLC I-Class PLUS, Xevo™ G3 QToF Mass Spectrometer CORTECS T3 Column, 120 Å, 2.7 µm, 2.1 mm x 100 mm (p/n: 186008484), CORTECS T3 VanGuard Cartridge, 120 Å, 2.7 µm, 2.1 mm x 5 mm (3/pk) (p/n: 186008506), VanGuard Cartridge Holder (p/n: 186007949)
2018.08 **First Action**	Phenolics	*Echinacea* spp. aerial parts, roots, powdered extracts, capsules, tinctures	HPLC-UV	Arc HPLC with PDA detector CORTECS T3 Column, 120 Å, 2.7 µm, 3 mm x 100 mm (p/n: 186008489)
2008.03 **First Action**	Soy isoflavones	Dietary supplements, dietary supplement ingredients, soy foods	HPLC-UV	Arc HPLC with PDA or TUV detectors XTerra™ Shield RP_{18} Column, 125 Å, 3.5 µm, 3 mm x 150 mm (p/n: 186000424)
2015.17 **First Action**	Withanolides	*Withania somnifera* root, extracts	HPLC-UV	Arc HPLC with PDA or TUV detectors XSelect HSS C_{18} Column, 100 Å, 5 µm, 4.6 mm x 250 mm (p/n: 186004775)
2018.10 **First Action**	Cannabinoids	*Cannabis* flower, oil	UHPLC-UV	ACQUITY UPLC I-Class PLUS with PDA or TUV detectors CORTECS C_{18} Column, 90 Å, 1.6 µm, 3.0 mm x 100 mm (p/n: 186007100)
2018.11 **First Action**	Cannabinoids	*Cannabis* flower, resin, oil, tinctures, concentrates	UHPLC-UV and MS/MS (optional)	ACQUITY UPLC I-Class PLUS with PDA detector and optional Xevo G3 QToF Mass Spectrometer CORTECS C_{18} Column, 90 Å, 1.6 µm, 2.1 mm x 150 mm (p/n: 186007096)

Laboratories that plan to implement AOAC methods and fulfill accreditation requirements must perform method verification. This ensures that laboratories can meet the performance parameters for in-scope sample matrices outlined in the test methods. Refer to AOAC INTERNATIONAL Accreditation Guidelines for Laboratories (ALACC) for additional information.

In cases where the use of AOAC Official Methods℠ is desired for new matrices, laboratories can submit validation data for an extension of scope as described in Appendix G - Procedures and Guidelines for the Use of AOAC Voluntary Consensus Standards to Evaluate Characteristics of a Method of Analysis.

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