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Prequalification Team Inspection services
WHO PUBLIC INSPECTION REPORT
(WHOPIR)
Finished Product Manufacturer

Part 1	**General information**
Manufacturers details	
Name of manufacturer	Zhejiang Apeloa Kangyu Pharmaceutical Co., Ltd
Corporate address of manufacturer	Apeloa Pharmaceutical Co., Ltd. 399 Jiangnan Road, Hengdian, Dongyang, Zhejiang 322118, China
Inspected site	
Name & address of inspected manufacturing site if different from that given above	Site 1: 333, Jiangnan Road, Hengdian, Dongyang, Zhejiang, P.R. China Site 2: 333, Jiangnan Second Road, Hengdian, Dongyang, Zhejiang, P.R. China
Unit / block / workshop number	Workshop 7, Building No. 27
Inspection details	
Dates of inspection	13 - 17 January 2020
Type of inspection	Initial FPP inspection
Introduction	
Brief description of the manufacturing activities	Production and quality control of APIs and FPPs (Site 1) Production and quality control of FPPs (site 2)
General information about the company and site	Zhejiang Apeloa Kangyu Pharmaceutical Co. Ltd. is a member of Apeloa Pharmaceutical Co. Ltd. which is part of the Hengdian Group. The company has been licensed by the Chinese drug regulatory authority for the manufacturing of Active Pharmaceutical Ingredients (APIs) as well as Finished Pharmaceutical Products (FPP). Zhejiang Apeloa Kangyu Pharmaceutical Co., Ltd. has two manufacturing sites: • Site 1 is a large multi-workshop complex located at the 333 Jiangnan Road, Hengdian Town. • Site 2 is located at 333 Jiangnan **Second** Road, Hengdian Town and has two distinct campuses separated by a public road. The distance between the two manufacturing sites is approximately 3 km despite the very similar addresses assigned by the municipal authorities. The naming is confusing, and care should be taken by those using and reading this report when considering the application of WHOPQT findings to their own situation.

	The number of personnel including both sites at the time of the inspection was approximately 991. Whilst most of the on-site inspection was conducted at site 2, Workshop 7 (manufacture and testing), site 1, housed the API and staring materials warehouse as well as the manufacturing of the initial bio-batches as per the dossier submission. Cephalosporin API and FPP manufacturing also occurs on the site in different workshops.
History	This was the first WHO inspection of any of the company's FPP manufacturing sites. The FPP site in the inspection scope is a new site built since the WHO API inspection conducted 27-30 January 2015. The API manufacturing facility, Site 1 had been inspected by US FDA in 2018. No other regulatory authority or the domestic inspectorate had inspected the FPP, Site 2 plant.
Brief report of inspection activities undertaken – Scope and limitations	
Areas inspected	Site 2, WS 7, Building No.27 Quality management system QC including chemical and microbiological laboratories Water system Site 1, Starting material warehouse
Restrictions	The inspection was restricted to the production of: • Levofloxacin Tablet, Film-coated 250mg and 500mg manufacturing lines, Workshop 7, Site 2.
Out of scope	All other products and workshops were outside of the inspection scope and were not visited.
WHO products covered by the inspection	TB 377 Levofloxacin Tablet, Film-coated 250mg TB 378 Levofloxacin Tablet, Film-coated 500mg
Abbreviations	**Meaning**
AHU	Air handling unit
ALCOA	Attributable, legible, contemporaneous, original and accurate
API	Active pharmaceutical ingredient
APR	Annual product review
APS	Aseptic process simulation
BMR	Batch manufacturing record
BPR	Batch production record
CC	Change control
CFU	Colony-forming unit
CIP	Cleaning in place

CoA	Certificate of analysis
CpK	Process capability
DQ	Design qualification
EDI	Electronic deionization
EM	Environmental monitoring
FMEA	Failure modes and effects analysis
FPP	Finished pharmaceutical product
FTA	Fault tree analysis
GMP	Good manufacturing practices
GPT	Growth promotion test
HEPA	High efficiency particulate air
HPLC	High performance liquid chromatography (or high performance liquid chromatography equipment)
HVAC	Heating, ventilation and air conditioning
IQ	Installation qualification
LAF	Laminar air flow
LIMS	Laboratory information management system
MB	Microbiology
MBL	Microbiology laboratory
MF	Master formulae
MFT	Media fill Test
MR	Management review
NC	Non conformity
NRA	National regulatory agency
OQ	Operational qualification
OOS	Out of specifications
OOT	Out of trends
PHA	Process hazard analysis
PLC	Programmable logic controller
PM	Preventive maintenance
PQ	Performance qualification
PQR	Product quality review
PQS	Pharmaceutical quality system
PW	Purified water
QA	Quality assurance
QC	Quality control
QCL	Quality control laboratory
QMS	Quality management system
QRM	Quality risk management
RA	Risk assessment
RCA	Root cause analysis
RO	Reverse osmosis
SIP	Sterilization in place
SMF	Site master file

SMP	Standard management procedure
SOP	Standard operating procedure
URS	User requirements specifications
UV	Ultraviolet-visible spectrophotometer
WFI	Water for injection

Part 2	**Summary of the findings and comments (where applicable)**

1. Pharmaceutical quality system

The quality management system was generally well established, documented and implemented. The site organizational structure was presented and was generally acceptable. Quality-related activities were defined and documented. The quality assurance department was independent from production. The persons authorized to release products were specified. However, some observations were noted and resolved in the submitted CAPA.

Product quality review (PQR)

The SOP for PQR was reviewed. While the procedure was generally considered satisfactory, there were some ambiguities and elements requiring clarification and improved description in the relevant SOPs.

At the time of the inspection there had been no commercial product in site 2 and the validation for commercial batches at the new site was ongoing. As a result, there was no site 2 PQR to review. In order to inspect the system for PQRs, the PQR for *Levofloxacin hemihydrate* film coated tablets 250mg/500mg for the initial registration batches produced on Site 1 in WS02 were reviewed. Deviations and OOS/OOT were reported.

The inspection observations were subsequently addressed in CAPAs to a satisfactory level.

Quality Risk Management

Quality risk management and risk assessment was handled and performed according to a SOP. Various approaches to risk assessment were allowed for in the SOP, with the main focus on utilization the FMEA model.

The report on risk assessment in the change control performed for Levofloxacin tablets site transfer was reviewed and generally found acceptable. Deficiencies were observed relating to the risks management in equipment change, as well as on risk identification of the blister machine line clearance at the end of a batch prior to the next batch set up. These observations have been addressed by the manufacturer to an acceptable level.

OOS/OOT management

Procedures for OOS/OOT were available for review. The 2019 OOS logbook was inspected. The OOS reports were all invalidated after lab investigation. The investigation procedure regarding handling of retesting and result results was reviewed. The company also had a separate procedure of handling abnormal data outside of the OOS/OOT. Non-compliances observed during the inspection that were listed in the full report regarding OOS/OOT management were addressed by the manufacturer to an acceptable level and will be verified at a future inspection.

Change control

Change control was managed according to a written procedure. Several major changes occurred at the company since the last WHO inspection which include the new production blocks and QC labs at site 2. In addition, a new high rack warehouse was under construction at site 2 at the time of inspection.

Deviations

Deviations were handled according to a written procedure. Seeing that full production was not yet established, few records were available.

Product release

Product release of FPP was managed according to a written procedure. The procedure was reviewed. Some weakness in the procedure was noted which have been addressed by the manufacturer.

2. Good manufacturing practices for pharmaceutical products

Good manufacturing practices were generally implemented. Necessary human and physical resources were provided for the current operational level of FPP manufacturing. At Site 2, manufacturing processes relating to granulation and tableting were under validation. Non-compliances observed during the inspection regarding process validation, listed in the inspection report, were satisfactory addressed by the manufacturer.

3. Sanitation and hygiene

Premises and equipment in the FPP production area were maintained at a satisfactory level of cleanliness. Personal hygiene and sanitation with appropriate hand washing facility were observed. Areas were cleaned frequently in accordance with an approved written programme. Personnel at the new site were seen to be performing their duties in an organized and diligent manner.

4. Qualification and validation

Process validation

Process validation was performed according to a process validation of non-sterile preparations SMP. The process validation protocol of Levofloxacin tablet 500mg approved in 2017 and BMRs of PV batches were reviewed. The protocol listed the CQA and CPPs. One PV batch of Levofloxacin tablet 500mg was in process at Workshop 7. Some observations were made which have been satisfactory addressed.

Cleaning validation

Cleaning validation was performed according to a written procedure. The company had introduced PDE based approach for setting allowable residue limits after equipment cleaning. Several products shared same equipment such as the granulator and others on production line for Levofloxacin Tablets, Workshop 7. Cleaning validation report of the table production line was reviewed and discussed. The Non-compliances observed during the inspection that was listed in the inspection report regarding cleaning validation were addressed by the manufacturer to a satisfactory level.

5. Complaints

Complaints were handled according to a documented procedure. It was the responsibility of QA to investigate complaints and initiate CAPA where necessary. No complaints on Levofloxacin tablets were available as the products have not been commercially marketed both in domestic and international markets.

6. Product recalls

The procedure of handling of returns and recalls were available for inspection. The WHO PQ products have not been supplied to markets. No batches were recalled.

7. Contract production, analysis and other activities

No manufacturing was contracted out. Some QC testing for primary packaging materials and excipients were subcontracted. Contracts were in place where needed.

8. Self-inspection, quality audits and suppliers' audits and approval

Self-inspection

A self-inspection plan and SOP were in place. This was not reviewed in detail.

Suppliers' audits

Suppliers' audits procedure for starting materials was in place. An approved vendor list was available which included API, excipients and packaging materials. The material code linked to suppliers were inspected. Some weakness was noted and have been addressed by the manufacturer.

The APIs used for the WHO FPPs in the scope of the inspection are manufactured at Site 1. The API site was inspected by the WHO in 2015 with compliance outcome.

9. Personnel

There was an adequate number of personnel with suitably qualification, education and training to perform and supervise the manufacture of FPPs. The personnel met during the inspection appeared to be knowledgeable about GMP. An organization chart was available. Key personnel responsibilities were defined in job descriptions.

10. Training

Training was conducted initially and ongoing. Training programme records were not reviewed in detail; however, the effectiveness of training and knowledge of relevant staff was evaluated during inspection by interview e.g. production line clearance after noting issues with the line clearance of the blister machine and QC IR testing. Some observations were made which have been address by the manufacturer.

11. Personal hygiene

Personnel hygiene requirements were documented in an SOP. The requirements for entering Grade D cleanrooms were well documented, including pictorial drawings in the change rooms. Staff observed in these areas were dressed in appropriate protective clothing.

12. Premises

At the start of the inspection, the confusion in the physical and written official postal addresses of the two sites (Site 1 and Site 2) were clarified. This was compounded by official documents from the provincial and city authorities concerning street name/number changes and the lack in clarity in the naming of the legal companies in some documentation. The location and address of the sites were clarified and the SMF was updated accordingly.

Users of this PQR are recommended to check their records of site names and exact addresses due to confusion caused by the similar official names and addresses.

Site 2, Building 27 housed tablet production lines, packaging facilities (workshop 7), QC laboratory, a high rack warehouse under construction and a PW water system. The relevant areas for the products in scope were inspected. The facility was designed and well-ordered with an acceptable degree of containment systems in place relating to the current range of products handled. Workshop 7 where production and packaging of Levofloxacin film coated tablets was to take place were not dedicated and will be used for further products in development and scale up.

The QC labs located in the Building 27 had a separate entrance. Adequate space was provided for QC activities. It was noted that the microbiological test of Cephalosporin products produced at site 1 was tested at the lab.

Utilities

Adequate ventilation, air filtration and exhaust systems were provided. The HVAC system providing filtered air to a Grade D cleanroom.

Purified water

Purified water was produced from mains drinking water by RO followed by EDI. Water distribution was at ambient temperature. The distribution loop was sanitized at specified time interval. Microbiological sampling and testing in 2019 were reviewed and found acceptable.

The PW system generally appeared well designed and maintained, under good control, and suitable to produce PW for FPP production.

Lighting

Lighting was adequate in all areas visited during the inspection.

Sanitation and maintenance

All areas visited appeared to be clean. Cleaning procedures were available, and records maintained. There was evidence of suitable pest control measures throughout the premises.

13. Equipment

Design and construction

Equipment installed in the Workshop 7 was multi-purpose and each piece of equipment had a unique identification number. The equipment viewed appeared to be of suitable design and construction for the allocated process.

Equipment maintenance and cleaning

The equipment viewed during the inspection in the Workshop 7 appeared to have been suitably maintained and in good condition.

Cleaning procedures and records were available for each item of equipment. The SOPs for cleaning of a wet granulation and a compressing machine were reviewed. Equipment status labels were available. The coating machine used in tablets production was inspected. The SOP lacked sufficient detail of effective checking after CIP. This has been addressed by the manufacturer.

The deficiencies listed in the inspection report regarding the cleaning and line clearance of the tablet primary packaging line has been addressed by the manufacturer.

Calibration

Measuring equipment was labelled with a calibration status label and all checked were within recalibration date. Punch and die calibration were checked, observations were made which have been addressed by the manufacturer.

Computerized systems

Computerized systems were used deployed in the warehouse and in production. Systems will be finalised once the automated high bay warehouse were completed.

There was no LIMS in QC. HPLCs and GCs were networked with a computerized system. FTIR and UV spectrophotometers had their own standalone computer systems with data backup on a server. The data operation of IR was checked. Some observations regarding IR testing have been addressed by the manufacturer in CAPAs.

14. Materials

Incoming materials and finished products were quarantined after receipt until release for use or distribution. Materials and products were stored under the required conditions.

Starting materials and packaging materials except the API used for the WHO PQ FPP in the scope were purchased from approved suppliers. API for the WHO PQ products are manufactured by the company at Site 1.

Starting material, packaging material for FPP were stored in different warehouse rooms located at Site 1. Inventory was managed by a manual bin card system. The warehouse in the building 27 was not yet completed. It is the intention to relocate storage of starting material during early 2021. Bulk Levofloxacin tablets was stored at the production block. The storage rooms for starting material and finished FPP in the Building 27 were visited. Non-compliances observed during the inspection that was listed in the inspection report regarding material management were addressed by the manufacturer.

15. Documentation

The documentation system was paper based and controlled by QA department. In general, documentation was designed, prepared, reviewed and distributed according to a documented procedure.

Approved, signed and dated testing procedures and specifications were available for starting, packaging and for finished products.

A batch numbering system was in place. Batch manufacturing records (BMRs) were retained for each batch processed. The Levofloxacin PV BMRs were reviewed. Non-compliances observed during the inspection that was listed in the inspection report regarding the design and management of BMRs were addressed by the manufacturer.

16. Good practices in production

The manufacturing processes were performed and recorded according to instructions in the batch production records. The production of a Levofloxacin tablets 500mg process validation batch was in operation at the time of inspection. Manufacturing records of the products under processing were spot checked. The IPC testing (e.g. leak test, tablet weight), performed in the IPC laboratory, located within the processing area, were inspected and found acceptable.

17. Good practices in quality control

There are two QC labs located at site 1 and site 2. The QC laboratory at Site 1 was responsible for API and FPP testing manufactured on site. The QC laboratory at Site 2 was used for testing of FPP starting material except Levofloxacin API and FPP finished products. The microbiological lab at Site 2 served both sites. The QC labs at Site 2 was well equipped with HPLC, GC and other testing instruments.

Testing of starting materials and finished products

QC testing was conducted as specified in the relevant specification and according to documented test methods. Samples for testing were kept in a designated area. The sample receiving, and distribution logbook was inspected.

Primary pharmacopoeia reference standards were available and secondary reference standards were prepared against the primary reference standards by each of the two QC labs.

Control of computer access, authorization of functions and back up of testing data (IR) were checked during the inspection.

Stability monitoring of FPPs

A range of stability chambers were available at Site 2, QC lab. The stability samples of Levofloxacin tablets made at Site 2 were not available and no testing results were available for the three PV batches of Levofloxacin tablets 250mg and 500mg. Non-compliances observed during the inspection that was listed in the inspection report regarding management of stability study were addressed by the manufacturer.

Reserve/retention samples

There was a designated temperature-controlled area for storage of retention samples. Access to this area was restricted. A sample of each batch of FPP manufactured was kept.

Part 3	Conclusion – Inspection outcome

Based on the areas inspected, the people met and the documents reviewed, and considering the findings of the inspection, including the observations listed in the Inspection Report, ***Zhejiang Apeloa Kangyu Pharmaceutical Co. Ltd.***, located at ***333 Jiangnan Second Road, Hengdian, Dongyang, Zhejiang, P.R. China*** was considered to be operating at an acceptable level of compliance with WHO GMP Guidelines.

All the non-compliances observed during the inspection that were listed in the full report as well as those reflected in the WHOPIR, were addressed by the manufacturer, to a satisfactory level, prior to the publication of the WHOPIR

This WHOPIR will remain valid for 3 years, provided that the outcome of any inspection conducted during this period is positive.

Part 4	List of WHO Guidelines referenced in the inspection report

1. WHO good manufacturing practices for pharmaceutical products: main principles. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-eighth Report Geneva, World Health Organization, 2014 (WHO Technical Report Series, No. 986), Annex 2. ***Short name: WHO TRS No. 986, Annex 2***
   http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/trs_986/en/
2. WHO good manufacturing practices for active pharmaceutical ingredients. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fourth Report. Geneva, World Health Organization, 2010 (WHO Technical Report Series, No. 957), Annex 2. ***Short name: WHO GMP for APIs*** or ***TRS No. 957, Annex 2***
   http://www.who.int/medicines/publications/44threport/en/

3. WHO good manufacturing practices: water for pharmaceutical use. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fourth-sixth Report. Geneva, World Health Organization, 2012 (WHO Technical Report Series, No. 970), Annex 2
   Short name: WHO TRS No. 970, Annex 2
   http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/trs_970/en/
4. WHO guidelines for sampling of pharmaceutical products and related materials. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Thirty-ninth Report. Geneva, World Health Organization, 2005 (WHO Technical Report Series, No. 929), Annex 4
   Short name: WHO TRS No. 929, Annex 4
   http://whqlibdoc.who.int/trs/WHO_TRS_929_eng.pdf?ua=1

5. Guidelines on heating, ventilation and air-conditioning systems for non-sterile pharmaceutical products. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fifty-second Report Geneva, World Health Organization, 2018 (WHO Technical Report Series, No. 1010), Annex 8. **Short name: WHO TRS No. 1010, Annex 8**
   http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/trs_1010/en/

6. Supplementary guidelines on good manufacturing practices: validation. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fortieth Report. Geneva, World Health Organization, 2006 (WHO Technical Report Series, No. 937), Annex 4
   Short name: WHO TRS No. 937, Annex 4
   http://whqlibdoc.who.int/trs/WHO_TRS_937_eng.pdf?ua=1

7. WHO Good Practices for Pharmaceutical Quality Control Laboratories. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fourth Report. Geneva, World Health Organization, 2010 (WHO Technical Report Series, No. 957, Annex 1
   Short name: WHO GPPQCL Guidelines or ***TRS No. 957, Annex 1***
   http://www.who.int/medicines/publications/44threport/en/

8. WHO Good Practices for Pharmaceutical Products Containing Hazardous Substances. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fourth Report. Geneva, World Health Organization, 2010 (WHO Technical Report Series, No. 957), Annex 2
   Short name: WHO TRS No. 957, Annex 2
   http://www.who.int/medicines/publications/44threport/en/

9. WHO good manufacturing practices for sterile pharmaceutical products. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 6
   Short name: WHO TRS No. 961, Annex 6
   http://whqlibdoc.who.int/trs/WHO_TRS_961_eng.pdf?ua=1

10. WHO guidelines on transfer of technology in pharmaceutical manufacturing WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 7
    Short name: WHO TRS No. 961, Annex 7
    http://whqlibdoc.who.int/trs/WHO_TRS_961_eng.pdf?ua=1

11. Model guidance for the storage and transport of time-and temperature-sensitive pharmaceutical products. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 9. ***Short name: WHO TRS No. 961, Annex 9***
    http://whqlibdoc.who.int/trs/WHO_TRS_961_eng.pdf?ua=1

12. General guidelines for the establishment maintenance and distribution of chemical reference substances. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-first Report Geneva, World Health Organization 2007 (WHO Technical Report Series, No.943) Annex 3
    Short name: WHO TRS No. 943, Annex 3
    http://whqlibdoc.who.int/trs/WHO_TRS_943_eng.pdf?ua=1

13. WHO good practices for pharmaceutical microbiology laboratories. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 2
    Short name: WHO TRS No. 961, Annex 2
    http://whqlibdoc.who.int/trs/WHO_TRS_961_eng.pdf?ua=1

14. WHO guidelines on quality risk management. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-seventh Report Geneva, World Health Organization, 2013 (WHO Technical Report Series, No. 981), Annex 2. ***Short name: WHO TRS No. 981, Annex 2***
    http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/trs_981/en/
15. WHO guidelines on variation to a prequalified product. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-seventh Report Geneva, World Health Organization, 2013 (WHO Technical Report Series, No. 981), Annex 3. ***Short name: WHO TRS No. 981, Annex 3***
    http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/trs_981/en/
16. WHO guidelines for drafting a site master file. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-fifth Report Geneva, World Health Organization, 2011 (WHO Technical Report Series, No. 961), Annex 14. ***Short name: WHO TRS No. 961, Annex 14***
    http://whqlibdoc.who.int/trs/WHO_TRS_961_eng.pdf?ua=1

17. WHO Guidelines on good manufacturing practices: validation, Appendix 7: non-sterile process validation. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-ninth Report Geneva, World Health Organization, 2015 (WHO Technical Report Series, No. 992), Annex 3. ***Short name: WHO TRS No. 992, Annex 3***
http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/WHO_TRS_992_web.pdf

18. WHO General guidance on hold-time studies WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-ninth Report Geneva, World Health Organization, 2015 (WHO Technical Report Series, No. 992), Annex 4. ***Short name: WHO TRS No. 992, Annex 4***
http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/WHO_TRS_992_web.pdf

19. WHO Technical supplements to Model Guidance for storage and transport of time – and temperature – sensitive pharmaceutical products. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-ninth Report Geneva, World Health Organization, 2015 (WHO Technical Report Series, No. 992), Annex 5. ***Short name: WHO TRS No. 992, Annex 5***
http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/WHO_TRS_992_web.pdf

20. WHO Recommendations for quality requirements when plant – derived artemisin is used as a starting material in the production of antimalarial active pharmaceutical ingredients. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Forty-ninth Report Geneva, World Health Organization, 2015 (WHO Technical Report Series, No. 992), Annex 6
Short name: WHO TRS No. 992, Annex 6
http://www.who.int/medicines/areas/quality_safety/quality_assurance/expert_committee/WHO_TRS_992_web.pdf

21. Guidance on good data and record management practices. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fiftieth Report Geneva, World Health Organization, 2016 (WHO Technical Report Series, No. 996), Annex 5
Short name: WHO GDRMP or ***WHO TRS No. 996, Annex 5***
http://www.who.int/medicines/publications/pharmprep/WHO_TRS_996_annex05.pdf

22. WHO general guidance on variations to multisource pharmaceutical products. *WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fiftieth Report* Geneva, World Health Organization, 2016 (WHO Technical Report Series, No. 996), Annex 10
Short name: WHO TRS No. 996, Annex 10
http://www.who.int/medicines/publications/pharmprep/WHO_TRS_996_annex10.pdf

23. Stability testing of active pharmaceutical ingredients and finished pharmaceutical products. WHO Expert Committee on Specifications for Pharmaceutical Preparations. Fifty-second Report Geneva, World Health Organization, 2018 (WHO Technical Report Series, No. 1010), Annex 10.
Short name: WHO TRS No. 1010, Annex 10
http://www.who.int/medicines/publications/pharmprep/WHO_TRS_996_annex10.pdf