

Medicinal Cannabis Regulatory landscape: Good Agricultural and Collection Practices & Good Manufacturing Practices

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Introduction

Rules and laws form the basis of a stable society and are so entrenched in our way of life that they have become part of our behaviour.

Interest in herbal medicines has increased over recent decades and therefore the global market for medicinal herbs has grown rapidly. Consequently, the safety and quality of herbal medicines have become ever more important for both health authorities and patients. In the case of herbal medicinal substances and products, the Guidelines on Good Agriculture and Collection Practice (EU-GACP) and Good Manufacturing Practices (EU-GMP) are the applicable regulatory guidance applicable in the European Union, assuring that the companies structure their activities and ultimately contributing to the protection of patients. Both these guidelines have the simple goals of protecting patients and ensuring that product quality is not compromised. The effectiveness of these processes is determined by the reliability of the evidence gathered during the process, together with the integrity of the underlying data. Particularly in the case of cannabis for medicinal purposes, which is a relatively new area and where there is resistance to its acceptability after years of social, regulatory and scientific mistrust, the process is not just centred around building a new Industry, but also about building trust in that industry. As a consequence, it is essential that all activities are documented in a consistent and transparent way, also contributing to consolidate confidence in the field.

GACP – quality starts at cultivation

The main objectives of the GACP guideline REF are to contribute to the quality assurance of medicinal plant

materials used as the source for herbal medicines. The aim is to improve the quality, safety and efficacy of finished herbal products, encouraging and supporting the sustainable cultivation and collection of medicinal plants of consistent quality.

The GACP guidelines were developed to create a single supranational framework to ensure appropriate and consistent quality in the cultivation and production of medicinal plant and herbal substances, as the cultivation and primary processing of medicinal plants and herbal substances have a direct influence on the final quality of active pharmaceutical ingredients.

The GACP guidelines not only provide a basis for homogenized national or regional standards for the cultivation and collection of medicinal but is also required by many countries for the import of bulk cannabis flower to be used as a start material for further processing.

Since the aim of GACP is to regulate everything up and until the plant is harvested, in order to achieve consistency, the following key areas have to be considered:

- Control of starting materials and service providers: from seeds and cuttings selection, to fertilizers, water, pesticides, and herbicides.
- Standardisation of processes and methods – Consistency is key and in order to generate a harvest that has reliable levels of active ingredients, all aspects of cultivation should be considered: light, cleaning and disinfection, temperature and humidity control, pest management systems, harvest and processing methods, drying conditions and test methods.

Therefore, if one considers that quality starts at cultivation, then the GACP guidelines should always be read in connection with the GMP guidelines, which are applicable to the next steps.

The GACP and GMP intersection

The EU-GMP sets the basic quality requirements for the manufacturing steps of both active pharmaceutical ingredients – API, and of finished medicinal products. These apply to herbal products such as medicinal cannabis because of their often complex and variable nature, which requires a tight control of starting materials. In particular, the EU-GMP Annex 7 (REF) emphasise the utmost importance of GACP and recommends its use as a reference to build a proper quality system. This highlights the importance of GACPs and GMPs being implemented side-by-side in relation to medicinal cannabis production processes.

The usage and applicability of GACP and GMP guidelines may change depending on the nature of the production process and the intended product use. As such, proper contextualization is very important when discussing production of cannabis products for medicinal purposes and the inter-relation with GACP and GMP guidelines, as depicted on Table 1 of the EU-GMP Annex 7.

Where finished products are to be delivered into the market, GMP standards are mandatory, and it is the manufacturer's responsibility to ensure that the appropriate GMP classification is applied. The major objective for a manufacturer in applying GMP standards is to make sure that safety, quality, and efficacy of the product are not compromised, whilst also minimizing business risk.

Documentation and transparency bring a competitive advantage

Reliability is determined by the quality and trustworthiness of the information provided and is key to passing scrutiny. The ability to trace, secure and simplify transactions along the entire cannabis supply network becomes of utmost importance. Certifications for the newly emerging cannabis industry are essential to establish trust and to create transparency in this young and opaque market. Global standards are established and need to be applied. The role of artificial intelligence (AI) and the Internet of Things (IoT) in smart monitoring cannot be overemphasized. This involves fitting the farm and plants with sensors that gather data about the plant, its environment, and nutritional needs. By using AI-based and IoT devices in farms, cannabis cultivators can identify problems in plants and how to treat them properly. Each plant can be assigned a bar code or QR code to monitor its improvement over time and also suggest what is needed to make it grow optimally.

As a decentralized system, employing blockchain in cannabis has a way of tracking the physical properties of cannabis as it moves through the supply chain. This

removes the bottleneck of purchasing the wrong seeds and plants. With this, consumers can independently monitor the quality of the cannabis plants and products, thus increasing efficiency and compliance. Blockchain technology in cannabis cultivation can therefore improve transparency. by increasing the confidence and monitoring the journey of the plants from seed to sale.

Administration, record keeping and science is what creates a successful product. This process is helped along with transparency. By taking the lead in, cultivators will automatically have an edge over the competition. When the right documentation supports a healthy crop, it means a successful business. When medicines are used, including cannabis, patients instinctively trust it because they are aware of the strict quality control it is exposed to. The reason for this trust lies on the credibility that the pharmaceutical industry has built up over the decades to find itself in a position where the supply of a product automatically makes patients feel secure.

Conclusion

Overall, GMP and GACP provide a framework all about producing the same high-quality product each and every time, all year round. Data governance, which is the sum total of arrangements which provide assurance of data integrity, ensure that data, irrespective of the process, format or technology in which it is generated, recorded, processed, retained, retrieved and used will ensure an attributable, legible, contemporaneous, original, accurate, complete, consistent, enduring, and available record throughout the data lifecycle.

Working in a young industry where there is a lot of resistance to its acceptability, the process is not just centred around building a new industry, but also about building trust in that industry. This trust can only be built if those who work in the industry can be trusted – to do the right thing, to adhere to the rules, which can only be achieved by tracking every activity performed. Relying on a robust track and trace system can definitely be the key to achieve full transparency throughout the supply chain. It's audited, it's there. This not only makes a successful business and compatible with laws and regulations, but also actively contributes to building a new industry.

References

- Guideline on good agricultural and collection practice (GACP) for starting materials of herbal origin*, European Medicines Agency, 2006 Doc. Ref. EMEA/HMPC/246816/2005.
- Annex 7- Manufacture of Herbal Medicinal Products*, EudraLex, Volume 4. EU Guidelines to Good Manufacturing Practice Medicinal Products for Human and Veterinary Use. September 2008