Legalising Cannabis for Cancer:
Benefits of Indigenous Cannabis Therapeutics

Munyaradzi Mujuru¹ and Palesa Sekhejane²

The majority of African people use indigenous medicines for various ailments. This includes the use of cannabis to treat cancer. Non-communicable diseases like diabetes and cancer are now on the increase amongst African people. The use of conventional western medicine as a modality of treatment represents an insurmountable financial burden for most African governments, including South Africa. This propels the majority of people to turn to traditional medicines such as cannabis. A number of countries in the world, including several states in the United States of America, have legalised the use of cannabis, either for medicinal use only or with complete licence. This policy brief examines the history, science, policies and laws that may play a determining role in the legalisation of cannabis in South Africa. Cannabis, like several other herbal medicines, has been scientifically proven to be effective in the treatment of a number of ailments, including cancer, and yet it remains illegal in South Africa.

Introduction

As non-communicable diseases such as cancer, Diabetes and Hypertension increase at an unparalleled rate amongst African people, it is of paramount importance to reconsider the ways in which these diseases are being treated currently, and how they were treated before the advent of the western medicines and lifestyles that have now become mainstream in most parts of Africa. Cancer in particular is becoming more and more common amongst the people of Africa.¹ Cancer diagnosis and death statistics continue to increase because of the ageing and growth of the world population, and because of an increase in cancer-causing behaviours like smoking, and environmental factors like pollution, industrialisation and an unhealthy diet, which, together with smoking, account for 90% of reported cases. Cancer is causing more deaths than Acquired Immuno Deficiency Syndrome (AIDS), Tuberculosis and Malaria combined.² Some of the top five cancers in both males and females as of 2005 are tabulated below (Table 1), showing the number of new cases

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As a result of increasing and ageing populations, emerging countries such as South Africa suffer disproportionately from an increasing number of cancers. Over 60 per cent of the world's total cancer cases occur in Africa, Asia, and Central and South America, and incidentally, these regions also account for 70 per cent of the world's cancer deaths. The financial burden imposed by cancer and its associated effects is huge, extending, for example, to disbursements and the use of resources for care and rehabilitation. Days missed from work add to morbidity costs, while reported and each cancer as a percentage of all cancer cases combined. According to GLOBOCAN, a global project which collates cancer data and provides estimates of the incidence, mortality rates and prevalence of different cancers, there is an increase in cancer occurrence in developing countries. GLOBOCAN estimates that in 2012 there were about 14.1 million new cancer diagnoses, 8.2 million deaths due to cancer and 32.6 million people living with cancer worldwide. Of these, 57 per cent or 8 million of new cancer cases, 65 per cent or 5.3 million of cancer deaths and 48 per cent or 15.6 million of the five-year prevalent cancer cases occurred in developing countries, of which South Africa is one. As a result of increasing and ageing populations, emerging countries such as South Africa suffer disproportionately from an increasing number of cancers. Over 60 per cent of the world’s total cancer cases occur in Africa, Asia, and Central and South America, and incidentally, these regions also account for 70 per cent of the world’s cancer deaths. The financial burden imposed by cancer and its associated effects is huge, extending, for example, to disbursements and the use of resources for care and rehabilitation. Days missed from work add to morbidity costs, while

Table 1 Top five prevalent cancers in South Africa in both males and females

<table>
<thead>
<tr>
<th>Diagnosed cancer</th>
<th>Number of new cases</th>
<th>% of all cancer cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MALES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prostate</td>
<td>4315</td>
<td>21.15%</td>
</tr>
<tr>
<td>Cancers of unknown origin</td>
<td>1746</td>
<td>9.90%</td>
</tr>
<tr>
<td>Lung</td>
<td>1335</td>
<td>6.25%</td>
</tr>
<tr>
<td>Colorectal</td>
<td>1107</td>
<td>4.30%</td>
</tr>
<tr>
<td>Oesophageal</td>
<td>955</td>
<td>3.74%</td>
</tr>
<tr>
<td><strong>FEMALES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>5674</td>
<td>20.82%</td>
</tr>
<tr>
<td>Cervical</td>
<td>4851</td>
<td>17.76%</td>
</tr>
<tr>
<td>Cancers of unknown origin</td>
<td>1605</td>
<td>5.99%</td>
</tr>
<tr>
<td>Colorectal</td>
<td>990</td>
<td>3.64%</td>
</tr>
<tr>
<td>Kaposi’s Sarcoma</td>
<td>757</td>
<td>2.80%</td>
</tr>
</tbody>
</table>

Figure 1 Calculated average cost of cancer treatment using western medicine in South Africa, excluding hospitalisation (Econex).
premature deaths add to mortality costs. The American Cancer Society estimates the economic impact of premature deaths and disability from cancer worldwide in 2008 to have been around US$895 billion, excluding treatment costs using chemotherapy, surgery and the radiation. This figure constitutes about 1.5% of world GDP. When the direct costs of treating cancer are included, the figure climbs to a staggering US$1.4 trillion per year worldwide.\(^7,8\)

In South Africa, the average cost of quality comprehensive care is approximately R14.733 billion per annum; however, non-hospital costs amount to another R6.777 billion. Figure 1 depicts the average cost of cancer treatment for both male and female patients, excluding hospitalisation, which increases sharply with age.\(^9\)

However, the huge worldwide investment in the treatment and management of cancer makes for mixed progress reports on cancer survival. Some scientists report an increase in the five-year survivorship of those that have been diagnosed and treated, while others disagree and actually report an increase in their mortality rates. Those who disagree posit that claims to success are based on a reduction because of early diagnosis due to improved awareness of and screening for cancer, and also due to changes in incidences of cancer.\(^10,11\)

In the year 2000, the National Cancer Institute (NCI) reported that mortality from cancer had decreased for the first time since national record keeping started in the 1930s. However, progress in the prevention and treatment of cancer is mixed and does not tell only one story. Statistics based on age show that cancer mortality rates are actually increasing amongst women and older people. Age-adjusted deaths from cancer in 1994 were 6 per cent more than in 1970, and the World Health Organisation (WHO) estimates that one in eight deaths as of 2008 were due to cancer, with this number set to increase by 2010. Currently, in the mainstream medical industry, cancer is treated with surgery, radiation, chemotherapy, hormones and immunotherapy. As the incidences of cancer increase worldwide, especially in emerging economies such as South Africa, there is an urgent need to re-examine the current cancer treatment interventions mentioned above. As pointed out, the current ‘accepted’ treatments cost staggering amounts of money. The International Agency for Research on Cancer (IARC) estimates that by 2030, new cancer cases will number 21.4 million globally, up from 12.7 million new cases in 2008.\(^12\)

An estimated 72 per cent of South Africans use traditional medicines, including cannabis, to treat various ailments. Various legal frameworks have been put in place for the development and regulation of traditional medicine. These include the National Indigenous Knowledge Systems Act of 2004 and the Traditional Health Practitioners Act 35 of 2004.\(^13\) However, despite these legal interventions and the many claims locally and internationally as to the efficacy of cannabis and products derived from it in healing or alleviating the symptoms of various ailments such as cancer, cannabis remains banned even for medicinal use. Public and scientific opinions on the medical importance of cannabis are sharply divided. Some dismiss medical cannabis as a hoax that exploits people’s natural compassion for their sick family member or friend, while others claim that cannabis is a uniquely soothing medicine that has been withheld from patients through regulations based on false claims. Advocates of both viewpoints cite ‘scientific evidence’ to support their views and beliefs.\(^14\)

The National Development Plan and the Department of Science and Technology’s Ten-Year Innovation Plan on Bio-Economy

The South African government, through its Department of Science and Technology (DST), has developed a bio-economy strategy which is aligned to its National Development Plan (NDP) and its ten-year innovation plan. The innovation plan addresses social, economic, scientific and technological challenges through innovative research. Using the ‘Farmer to Pharma’ value chain to build the bio-economy, South Africa aims to become a leading country in biotechnology and pharmaceuticals developed from indigenous resources. Cannabis is one such plant which has been part of South African life for hundreds of years.\(^15,16\)

In the President’s 2014 State of the Nation address, five job drivers other than mining were identified: tourism, agriculture, the green economy, infrastructure development and manufacturing. There is a need to research the cannabis plant’s full potential and to encourage trials that will produce medicinal products containing cannabis. Cannabis has been identified by many researchers as a niche product worth exploring that can serve as a cash crop with labour-intensive job creation for poor provinces.
such as Limpopo. The NDP 2030 contemplates niche markets that provide opportunities for South Africans to compete globally and help in the transition to a green economy. Agricultural niche crops are mentioned as a target market in the NDP. Cannabis used for all its industrial purposes has the potential to radically transform some of South Africa’s poorest regions through the cultivation of the cannabis plant and the processing of the various related products. A regulated environment will allow this.17,18

Twenty states in the US have legalised cannabis use, and cannabis is available by prescription in Canada, the Netherlands, Israel and Germany. Research in the US has shown that the cannabis market is poised to grow at a faster rate than the smartphones market. It was estimated that US$1.43 billion worth of legal cannabis and related products would be sold in 2013, increasing by 64 per cent to US$2.34 billion in 2014.19

So besides the medical benefits of cannabis, this plant can be a driver of the bio-economy of South Africa. There is an urgent need for South Africa to start legalising research on cannabis usage. This research must be multi-disciplinary, such that effective policies can be derived from the research. As it stands now, scientists from various fields at universities and research councils need to comply with stringent regulations to be able to carry out research on cannabis, and this must be reviewed urgently.

The origins of the cannabis plant are disputed, some saying it originated from Central Asia, but cannabis has been cultivated for multiple uses by humans for thousands of years. These include the production of fibres and medicinal chemicals. The green, lush and fast-growing cannabis plant has several varieties, including cannabis sativa and cannabis indica. Indoors, in regulated heat and light, cannabis can grow to maturity in about 60 days, but outdoors it can take three to five months. The cannabis plant exists in male and female form (Figure 2), with the latter having higher concentrations of medicinally active compounds, especially delta-9-Tetrahydrocannabinol (THC).20

Figure 2 Male and female cannabis plants

Figure 3 Cannabis advert in the Cape Times in January 1896
Despite proof that cannabis has been a part of human history that is enshrined in people’s lives, it is banned in most countries around the world, including South Africa. Early usage of cannabis in Africa can be gleaned from the writings of colonists, explorers and advertising done in those days (Figure 3).²¹

In South Africa there are towns and places established with links to cannabis, as may be observed from the names they were given. These include Daggafontein, the Dagga Three Sisters hiking trail, the Dagga Boere Farm Stall, Daggaakraal, Daggaboersnek and the Dagga Rand Farm.²²

**Legislation/Regulation**

Different countries around the world have different laws and regulations on cannabis use, but most countries are signatories to the UN Single Point Convention on Narcotic Drugs overseen by the International Narcotics Control Board (INCB), which outlaws most drugs, including cannabis. The classification system used to regulate and control drugs has been called unscientific, unsystematic and arbitrary by scientists and health professionals. For example, alcohol and tobacco, which are legal in most countries, including South Africa, cause about 90 per cent of all drug-related deaths in the UK, yet cannabis, which is less harmful than alcohol and tobacco, is illegal.²³

In South Africa there are various laws and regulations to control drug use. These include the Prevention of and Treatment for Substance Abuse Act No. 17 of 2008, the Drugs and Drug Trafficking Act No. 140 of 1992 and the National Drug Master Plan 2006–2011, all of which prohibit the use of cannabis, be it for recreational or medicinal purposes.²⁴,²⁵

**Cannabis and Cancer**

The use of cannabis in curing several ailments, of which cancer is one, is one of the most difficult conundrums for experts from various fields, including the science, medicine, social and legal fields. There are growing numbers of sick people who are denied medical cannabis in South Africa, and yet they find it to be less toxic, more useful and cheaper than legally available medications. Cannabis is said to be less toxic than almost any medicine in the pharmacopoeia.²⁶

Despite various lines of evidence alluding to cannabis smoking causing cancer, epidemiologic studies on this are inconsistent. Hashibe and others in a number of cohort studies found out that the association of cancer with cannabis is not strong. Another study by Sidney and co-workers in 1997 confirmed the same.²⁷ With the continuing trend of increasing cancer incidence and deaths, the effective treatment and management of cancer is critical for patients. The development of a safe and effective treatment that improves cancer therapy remains a pipe dream. The current main treatment interventions of chemotherapy, radiation and surgery visit untold suffering on cancer patients and even cause deaths because of their huge side effects. It is because of this that research on alternative cures for cancer remains a huge effort and should be encouraged. Cannabis and its products offer one such promising cure, and in other countries research on cannabis cures is now at full throttle. In a review, Guindon and Hohmann show how oil from cannabis containing THC was very effective in suppressing the evolution and progression of breast, prostate, brain, skin, lung and bone cancers. Scientific literature is almost unanimous in showing that compounds extracted from cannabis, called cannabinoids, are efficacious in reducing cancer progression and even eliminating the cancer.²⁸

Cannabinoids are currently at the centre of one of the most exciting and yet underreported developments in medical science. Research has discovered a molecular signalling system in the human brain and body called the endocannabinoid system. This system regulates a broad range of physiological processes, including body temperature, blood pressure, bone density, circadian rhythms, hunger, intestinal fortitude, inflammation, mood and stress. There are more than 15 000 peer-reviewed articles on the chemistry and pharmacology of cannabis and cannabinoids, and over 2 000 peer-reviewed articles on the human body’s natural endocannabinoid system. Cannabinoid science research is literally exploding, as evidenced by the following:²⁹

- Scientists at the California Pacific Medical Centre (CPMC) in the US and Complutense University in Madrid, Spain have discovered that THC and other plant cannabinoids are effective in the management of cancer symptoms and even the healing of cancer.
- Scripps Research Institute in California found that cannabis compounds help in relieving symptoms of Alzheimer’s-related dementia.
Researchers at King’s College in London found that cannabis compounds help in the creation of new brain cells.

Pharmaceutical companies are designing and producing drugs to attenuate a range of pathological conditions such as hypertension learning from cannabis compounds.

Dr Sanjay Gupta has produced two CNN documentaries which confirm the use of cannabis in healing several ailments. This includes the use of cannabidiol (CBD), a non-psychoactive component of cannabis, in healing epileptic children.

The Medical Innovation Bill recently announced in Parliament brings cannabis into discussion and more in line with international changes. Issues arising from the Bill will serve as important guidelines for the law and policymakers during the process of reform, and this will help to take South Africa forward.

Conclusions and Recommendations

Learning from states in the US like Colorado, South Africa can start by legalising the medical use of cannabis. The framework in the NDP 2030 for migration to a green economy is a good starting policy, based on which cannabis can be legalised for broader use medicinally and for the alleviation of poverty. The resources required to criminalise cannabis are huge in the context of the South African economy. It is particularly recommended that:

- The use of cannabis and its products for medicinal purposes be legalised;
- The South African government should decriminalise cannabis and let the police and courts deal with more serious crimes;
- In accordance with the NDP 2030 and the DST’s Green Economy Strategy, research into cannabis by universities and other research institutions and the subsequent industrialisation thereof be encouraged; and
- The laws and policies of countries that have embraced cannabis use should be interrogated, and lessons learnt should inform the way forward for South Africa.

Notes and References

4. Ibid.
5. Ibid.
8. Econex, NHI Note 6, February 2010.
9. Ibid.
17. Ibid.
20. Ibid.
24. Ibid.
AISA is a statutory research body focusing on contemporary African affairs in its research, publications, library and documentation. AISA is dedicated to knowledge production, education, training and the promotion of awareness on Africa, for Africans and the international community. This is achieved through independent policy analysis, and the collection, processing and interpretation, and dissemination of information.

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