

The Impact of Commodification of Herbal Medicine by Pharmaceutical and Drug Development Companies

Andrew Taylor

Department of Anthropology

McMaster University

Abstract:

The issue of commodification of herbal medicines is large and complex. A brief background of herbal medicine is given. This paper then addresses several negative and positive implications for varying groups within and between societies resulting from increased interest and use of herbal medicines. Women's issues are addressed from empowerment in Western societies to the disempowerment of Non-Western women who use medicinal knowledge as a source of power. The dilemmas facing indigenous practitioners are discussed with focus on cultural and intellectual property. Environmental conservation and protection are covered, focusing on discovery, harvesting and preparation. Reflection on biomedical concerns and changes as well as its dominance over other medical systems also occurs. The Anthropologist's role is revealed within assessing programs and initiatives, consultation and advocacy for the issues that may result from commodification. Medicinal plants could therefore be a developmental tool for industrialized and indigenous cultures if done correctly with a high amount of indigenous consultation and compensation.

Introduction

The use of alternative and complementary forms of medicine has risen in the past few decades and continues to grow in popularity each year. Growing dissatisfaction in the biomedical system combined with the multi-cultural nature of North American society has led to new alternatives in medical care. From the many "unconventional" techniques, the use of medicinal herbs has perhaps been one of the largest growing alternatives to the traditional biomedical system. The use and popularity of herbal medicine have grown significantly in recent times among health practitioners and the general public. The increased interest in herbal medicine has led major drug development and pharmaceutical companies to believe that profit can be obtained from medicinal plants. Multi-national drug development companies are therefore now looking toward indigenous land and knowledge for new resources, which can be used in creating and mass-marketing new drugs (Elisabetsky and Shanley, 1994).

The use of indigenous herbal knowledge and resources has several implications for different areas of the varying societies already using this form of treatment, as well as for societies implementing this new kind of treatment. The commodification

of herbal remedies can lead to positive and negative changes in the role of women in society and the amount of power they hold in different cultural systems. Commodification can also have negative and positive effects on indigenous people and culture. The main issues concerning indigenous people are that of cultural and intellectual property and the exploitation of their knowledge.

There are also several implications that increased use in herbal medicine can have on the environment. Depending on the processes and techniques used by drug and biomedical companies, environmental conditions may worsen or improve from the increased use of herbal remedies. Because increased herbal use and commodification of these remedies can affect many different parts of society, the biomedical system may experience positive and negative impacts as well. It is therefore necessary for anthropologists to study and research this issue to gain a greater understanding of what implications increased production of herbal medicine can have for the cultures implementing them and the cultures where alternative herbal medicine originated from.

Background

A brief outline is necessary to understand the history of herbal medicine in North America. During colonial times, before biomedicine was implemented, most health care occurred inside the home. Healers would traditionally work inside a very closed and local setting (Winslow and Knoll, 1998: 2192). Women and local healers would grow small gardens of medicinal herbs to treat family members and the local community. Soon remedies became patented and could be obtained at a community level and eventually home gardens were unnecessary for using herb remedies (Winslow and Knoll, 1998: 2192). During the 19th century biomedicine became established and gradually made herbal medicine appear obsolete by defining it as "unscientific". Only in the late 20th century would medicinal plants be used again in the North American biomedicine system and by the general public (Winslow and Knoll, 1998: 2192). This popularity has come from dissatisfaction with biomedicine and the desire of patients to establish prevention and self care techniques (Donley, 1998: 300). Popularity could also be attributed to the exposure to varying forms of medical systems and culture beliefs from the diverse North American population and the increase in non-Western health practitioners.

Currently the benefits of herbal medicine are under intense debate in the biomedical community. The general public has increased their use of alternative medicine and has turned to herbal remedies as one of the major systems for preventative medicine and as a form of self-care. In previous studies, although sometimes conflicting, the consensus is that in 1996 the sales of herbal medicine amounted to approximately three billion dollars for the United States of America alone (Miller, 1998: 2200). The use of herbal medicine is growing at a rate of approximately 20% every year (Winslow and Knoll, 1998: 2193). Popularity and resurgence in medicinal remedies is currently occurring in North America, causing increased growth that appears as more than a mere "fad".

This growing popularity has led pharmaceutical and drug development companies to capitalize on the interest of the population by searching for new herbal remedies to be used as natural products or as pharmaceuticals. Currently,

30% of all modern drugs utilized in biomedicine were originally derived from plant origins (Winslow and Knoll, 1998: 2192). Multinational interest has led to the exploitation of indigenous people's land and knowledge as a potential new resource of medical knowledge and profit. Pharmaceutical companies are now sending employees into the Amazon and Africa to search for potentially marketable herbal remedies. Rainforests have therefore become a source of income for these companies (Elisabetsky and Shanley, 1994). Usually no monetary compensation is given to indigenous people; their knowledge is instead appropriated and mass-marketed in the biomedical system. Sometimes these companies will even take indigenous knowledge, patent, mass-produce and sell it, back to the people it was obtained from (Miles, 1998). Herbal information is usually brought back to North America where inadequate study is performed on the introduction of these medicines and the interactions they may have with "conventional" biomedical systems (Lee, 1999). In short, the increased interest in herbal medicines has caused increased exploitation of medicinal plants for profit. Plants have thus become a renewed resource for commodification by pharmaceutical and drug development companies.

Gender Implications

Commodification may lead to several implications for women in varying societies. Firstly, it has to be mentioned that there has been little research done on this subject. It seems only in the last five or six years has the first research been done concerning how commodification and increased use of herbal medicine may affect women (Bell, 1994; Rasmussen, 1998; Wayland, 2001). To understand the implications of the incorporation of herbal medicine into the biomedical system, the affect this system has on women in society must first be defined. Traditionally, biomedicine has been seen as hierarchical in nature, creating power relationships between the knowing doctor and the unknowing patient (Eisenberg, 1997: 66). This hierarchical structure can lead to gender inequalities, attempts to disempower other medical forms of healing and to the elimination of the responsibility of prevention and self care for the individual (Gaylord, 1999: 33). Biomedicine also uses war-like language and an overemphasis on a masculine approach, by accentuating qualities of aggressiveness and control to combat illness and disease. At the same time biomedicine devalues language and approaches that have feminine qualities such as gentler holistic ways of healing and maintaining balance within the body through self-care techniques (Gaylord, 1999: 33). Therefore, biomedicine has traditionally been disempowering to women by belittling feminine qualities and eliminating the ability for self-care.

North American and indigenous medical systems have traditionally been very different when compared to biomedicine. Perhaps the largest difference is that health-care in North America used to be controlled mainly by women. Women have always been experts concerning medical knowledge and especially the harvesting and preparation of medical plants in North American history (Winslow and Knoll, 1998: 2192). Women have also traditionally been experts in medical knowledge for many indigenous medical systems that use herbal remedies as a basis for treatment (Wayland, 2001: 174). Therefore, these systems emphasize qualities that have been

labeled as feminine. Theories of illness and disease are defined differently in these systems and ways of curing and treating illness is different as well. Holistic healing becomes the main focus and emphasis is placed on empowering the individual and self-care. Hierarchical/patriarchal structure and mentality must therefore be seen to a lesser degree in many medical systems that use herbal techniques as a form of treatment and care.

Positive Consequences

The implications of introducing herbal medicine into biomedical systems for women in North America can best be seen through the example of elderly women in the population. In North America, the rates of elderly people are growing exponentially, making them one of the largest segments of our population. In this group of people it has been estimated that 80% have a chronic medical condition (Zhan, 1999: 26). This demonstrates the increasing burden of elderly people on the economy and health care system. In particular, elderly women (and elderly women belonging to minority groups) have been most affected concerning health care systems. Therefore, some kind of solution involving self or patient mediated care and more cost-effective ways of treating health must be incorporated into North American society (Zhan, 1999). Considering herbal medicine has been traditionally controlled by women and because herbal theory and practice uses self-care techniques and emphasizes prevention, it can become a major solution to this problem. By placing emphasis on empowering the patient and through the use of ideas and a mentality that enables older women in society to become less dependent on the medical system, women can gain control of their own lives (Gaylord, 1999: 45). Therefore, through the introduction of herbal medicine, women, particularly the elderly, may gain increased respect and power thus increasing the egalitarian nature of North American society.

Negative Consequences

The empowering nature of herbal medicine and the positive results seen in North American culture do not represent the consequences of commodification for societies that already use herbal systems of treatment. As previously mentioned women occupy a great deal of healing roles in traditional societies and in some cases, these roles may be their only basis for power. Women may occupy healing categories such as herbal specialist, community healer, shaman, midwife and child care professional (Gaylord, 1999). However, recent commodification of herbal remedies has begun to take away this role of power that women hold in these societies. By obtaining and using this information, biomedical doctors may take over the knowledge these women use to maintain their roles in society (Rasmussen, 1998). For example, in the Brazilian Amazon, biomedical initiatives have had their worst effect. In the attempt to create initiatives and programs that are cost-effective and culturally appropriate, health officials have created herbal remedies and traditional knowledge programs that can be accessible to all members of society. This takes the knowledge from the women who hold healing positions by marketing it and then selling it back to them. This of course eliminates the need for women's healing knowledge within their society, thus reducing their power (Wayland, 2001). Biomedicine has also devalued the knowledge of these women and does not involve them in health care

and treatment programs, further reducing their power and authority (Wayland, 2001: 182).

Implications for Indigenous People

Positive Consequences

The commodification of medicinal plants may have implications for indigenous people who practice herbal medicine. Interest in herbal medicine could introduce several positive consequences for indigenous people. The main contribution would be the legitimization of indigenous people and their knowledge or belief systems. Indigenous knowledge has long been devalued in North American society, being labeled “primitive” or “backward”. With the realization that indigenous medical systems are of extreme value to society, North American populations may begin to respect indigenous knowledge and heritage (Miles, 1998). Through the reaffirming of indigenous beliefs, cultural preservation will be aided for indigenous people. With expanding populations and increasing globalization, acculturation is rising. Herbal medicine usage can become a form of cultural preservation.

Salvaging indigenous resources is another benefit. By implementing North American knowledge into indigenous medical systems, improved harvesting and preparation techniques can be created for healers. This will save medicinal plants that may be exhausted in certain regions and will ensure bio-diversity for these populations (Hibler, 2001). Employment opportunities can result from these salvaging techniques as well. Indigenous people can assume the responsibility of maintaining conservation areas to ensure that medicinal plants remain healthy and abundant (Shaman Pharmaceuticals, 1996). Indigenous people can also be employed as advisors for conservation area development and for new herbal remedies, their preparation and dosages (Shaman Pharmaceuticals, 1996; Trotter, 2000). By producing herbal remedies for health programs and initiatives for indigenous populations, more culturally applicable and sensitive treatments can be developed. With increased cost-effectiveness, these remedies can be produced for poor, remote and impoverished populations. These remedies will also be more readily accepted because they are developed to use the cultural systems of the people they are designed to treat (Bastien, 1990). Therefore, commodification of medicinal plants and the increase in use and popularity of herbal remedies can increase respect, power and living conditions for indigenous populations.

Negative Consequences

There are however, several negative implications that mass producing herbal medicine and knowledge can have for the indigenous people who practice it. For example, many drug development companies are obtaining only plants from indigenous people and are disregarding the practices and beliefs that these people have associated with medicinal usage. By not acknowledging the importance of ceremony and ritual behind certain practices, biomedicine is de-legitimizing the belief system of these people (Bierlich, 1999). This leads into the problem of cultural property. The issue of cultural knowledge, practice and heritage as intellectual property, which belongs to the people that practice it, is under current debate by the World Health Organization and the United Nations. Because these people have

developed and practice the use of herbal remedies, it is unjust for pharmaceutical prospectors to obtain this information from them and use it without proper consent and compensation. For many indigenous cultures, medical systems are part of their ethnic identity and belief systems. For example, the Caboclo people of the lower Amazon pride themselves in understanding disease critically and appreciate the choice that individuals have in health care, including traditional, rural and urban (rather than biomedical) treatments (Reeve, 2000: 104). By taking away such knowledge these people may be deprived of something that is integral for the maintenance of their cultural lifestyle.

The issue of compensation is also essential to the debate of cultural property. If drug development companies and pharmaceutical corporations are making a profit off indigenous knowledge, they should compensate the people who provide it. By not acknowledging the role of indigenous people and not respecting their wishes about knowledge and medical systems, biomedicine may be embarking on a new colonialism designed to exploit the heritage of these peoples (IDRC, 1996). The problem worsens when these drugs are sold back to the people from whom the knowledge was obtained. Indigenous peoples could therefore lose the ability to control their own treatment techniques and may not want to use biomedical clinics because they devalue indigenous knowledge (Wayland, 2001). Thus, pharmaceutical companies may increase or reinforce the power structure that biomedicine has established. This may also expand the power modern or developed nations have over traditional peoples. Therefore, exploitation and disrespectful behaviour toward indigenous peoples by pharmaceutical companies can increase as a result of commodification.

The commodification of herbal remedies can also have direct impacts on the indigenous people who practice such systems of treatment. As mentioned, when industrialized nations use traditional herbal knowledge it can influence indigenous population's self-esteem, ethnic identity, long held traditions and social roles. Power can be taken away from females, males and the elderly who have traditionally been in charge of health care within society because they may no longer control treatment of illness or their views and knowledge are considered unnecessary or unimportant (Gaylord, 1999). The economy of the society may also be disrupted by commodification of herbal products. The situation of the Dagomba people of northern Ghana offers an illustration. These people use bartering systems to obtain medical supplies and treatments. With the introduction of modern pharmaceuticals and drug therapy, these people are beginning to pay money for medicine (Bierlich, 1999: 334). This has grave implications for the Dagomba because they believe money can "spoil the medicine" (Bierlich, 1999: 334). Thus, their societal framework is being disrupted and their economic system is being interfered with by the introduction of money. If the herbal remedies these people use were sold back to them, several ethical concerns would arise because their society would suffer economically and their belief systems would become undermined.

Economics and social structure are not the only factors that may be disrupted within indigenous society. The registration and regulation of medicine also becomes problematic. Many health organizations and biomedical systems want to regulate the use of these drugs to ensure efficacy and safety for the people who use them (Lee, 1999: 255). This poses many problems for indigenous healers. Their knowledge

is being de-legitimated and they are treated as not being valuable enough to practice medicine if they are not registered as herbal experts. This becomes a problem for many community healers who can not afford the time or money to become registered (Okoth-Owiro, 1994). Many biomedical representatives may not understand the proper way to prepare or administer herbal remedies and may be teaching these people information that may not be useful and could be detrimental to their practice. Drug production may not coincide with the needs of the indigenous people who provide information on herbal remedies. Although herbal and traditional treatments are more cost-effective (because of the cheap production costs), they may still be too expensive for many of the people in a given community. People who can not afford to travel for care or who can still not save enough money remain unaided by treatment programs. Thus, programs designed to help these people may actually be marginalizing a certain portion of the population (Farmer, 1999). The problem of secularization of medicine may also be imposed on these people if regulation and registration is forced upon them, thus destroying their religious way of life (Okoth-Owiro, 1994).

The drugs being produced may not coincide with the needs of the population either. Developed nations produce drugs and experiment on drugs to treat sicknesses that are often different from the diseases plaguing people who use herbal techniques (Farmer, 1999). A population stricken with malaria for example is not going to benefit from a new herbal remedy for hypertension. The land of indigenous populations may also be destroyed from increased usage or from companies exploiting and damaging the area to obtain potential resources. Increased use of herbal medicine and “biomedicalizing” of the practice may lead to problems for indigenous people and to the destruction of their land, culture and rights.

Environmental Implications

Positive Consequences

The implications for the environment must be discussed in further detail. There are several positive factors that may result from the commodification of herbal products. Some indigenous populations may not be using optimal techniques for harvesting and preparation of herbal remedies. This can lead to the wasting of medicinal plants and their possible extinction (Hibler, 2001; IDRC, 2001). By implementing the technology and knowledge of pharmaceutical companies, community healers can learn how to prepare these medicines more efficiently. Harvesting can also be improved to damage fewer of the plants and to continue annual harvests and abundance of growth (Hibler, 2001). By contributing to the different medical systems of these indigenous people, Western nations can therefore improve certain cultural practices. Commodification can also reveal the importance of certain medicinal plants and the abundance of plant resources that are present in the rainforest and other regions of the globe. This may lead to better conservation techniques and development of conservation areas to help these plants survive and thrive (Iwokrama, 2001). By creating conservation areas and ceasing the destruction of the rainforest for purposes of food and developmental expansion, conservationist ideas can thus help the global ecosystem. This can improve conditions for indigenous people by ensuring the environment in which they live is not destroyed or

manipulated by industrialized forces.

Negative Consequences

The improper use of herbal medicine by drug development and pharmaceutical companies that do not realize the implications of their actions may also lead to several negative consequences. By increasing the use of herbal medicine, some indigenous populations may begin to overuse resources that were once plentiful. People in small nomadic societies may not need to care about preserving resources because their size and practices allow for overuse of the plants in their geographical region. Increased dependence on biomedicine and a rise in the use of medicinal plants may cause an over-exploitation of these already overused plants. This overuse can lead to extinction of certain plant species, which can disturb the ecosystem and may cause a chain of events that result in more plants becoming extinct (Iwokrama, 2001).

Dependence on the support of developed nations and the influence of modern technology and knowledge may also disrupt the balance that indigenous people have created between themselves and the ecosystem in which they occupy. It has been documented that indigenous people may manipulate their environment more than previously assumed; ensuring bio-diversity and ecosystemic health in ways that industrialized nations may not understand (Anderson and Posey, 1989; Hecht and Posey, 1989). The Kayapo people of Brazil are a good example of this. It has been demonstrated by Anderson and Posey (1989) and Hecht and Posey (1989) that these people are responsible for the bio-diversity and health of the region they occupy in Brazil through soil management and farming techniques.

A Western influence may cause the people to abandon their traditional way of life and can disrupt farming and other cultural practices that are used by these people to maintain ecosystemic health. Thus, the potential major environmental problem is a lack of bio-diversity that may result from improper usage of medicinal plants. If the plants are not used wisely, the ecosystem may become more homogenous and its survival is then put into jeopardy. Research teams who enter indigenous regions to find new resources may also cause damage to the ecosystem by creating trails or roads to access and harvest certain species of plants. Taking certain plants out of the ecosystem may be damaging because it can mean eliminating mechanisms used for maintaining a natural balance. For example, if a certain plant used as a food source for an animal were removed, that animal and all others who require it for survival would be disrupted. Thus, if drug development and pharmaceutical companies do not properly investigate and obtain medicinal plants, the environment may be threatened and further damage to our global ecosystem may occur.

Biomedical Implications

Positive Consequences

There are several implications that herbal medical systems can produce on the existing biomedical system in North America. There are in fact many positive consequences of incorporation of the "unconventional" into the "conventional" medical systems. The major implications can be the reduction of the patriarchal or

hierarchical structure biomedicine holds within society. Collaboration with indigenous people regarding herbal medicine, ritual and technique can lead to cooperation that may reduce this structure. Women and the elderly can gain more power over self-care techniques and can obtain independence from the biomedical system (Gaylord, 1999). Increasing mutual respect for indigenous knowledge may also occur, leading to a new importance for ritual and traditional ceremony and treatments. This can lead to enhanced changes to medical systems so that they begin to treat illness holistically using the mind and body because ritual and ceremony help with this part of treatment (Trotter, 2000). By integrating holistic methods and self-care, major emphasis can be placed on prevention and independent healing. This can improve doctor-patient relationships and reduce medical fees as well as overcrowded hospitals and doctors' offices. Thus economically speaking the general population and certain aspects of the biomedical system could potentially thrive, for example, with more funding for research or improved hospital conditions (Dalen, 1998).

Also, biomedicine can obtain more resources to develop treatment and cures for diseases. There has been a long-held assumption that herbal remedies only treat chronic disease and can only be used for long-term care and prevention (Dalen, 1998). Major herbal remedies can also be incorporated into drug regimens and treatment strategies that are used to cure many acute diseases. Examples of this integration can be seen in the treatment strategies for cancer, HIV/AIDS, diabetes and cardiovascular disease (Mashour et al., 1998; Dalen, 1998). Herbal medical systems can therefore help to contribute to biomedical systems by making them more holistic, culturally sensitive and by giving these systems more treatment possibilities.

Holistic healing, understanding of ritual importance and being culturally sensitive can also lead to better programs and initiatives designed for developing nations. Cost-effective treatments can be developed for nations that are plagued with illness that is too expensive to properly treat such as HIV/AIDS and tuberculosis (Farmer, 1999). Biomedicine may have less of a negative stigma attached to it in these countries if more culturally sensitive treatment plans are developed. Currently in many developing countries biomedicine is shied away from and even feared. This can be seen through the past example of women in a Caboclo community (Reeve, 2000) and from the example of a community in Cameroon (Feldman-Savelsberg et al., 2000). In 1990, there was a rumor started in this community that public health officials were sterilizing women and girls across the country. This stigma was attached to the program designed to immunize the community against tetanus. This is because there is a great lack of trust in the community and the biomedical system had to discover new ways to avoid this stigmatization by eliminating negative practices (Feldman-Savelsberg et al., 2000: 160). Therefore, a change in biomedicine can lead to programs that become more applicable and appropriate for developing populations and may result in less stigmatization of public health workers and programs.

Negative Consequences

If herbal medicine is incorporated in North American society, biomedicine will need to develop new approaches to avoid negative implications. There must be intense training of biomedical physicians in the use of herbal medicine to advise

patients when to use it and to monitor patients for any potential side effects (Miller, 1998). This will ensure that patients do not use these medicines without some knowledge of the effects that may result. Drug development and pharmaceutical companies will have to increase the research on these drugs and improve regulation and implementation of herbal remedies. Herbal medicine can be dangerous if not taken properly and regulation strategies must be incorporated into society to ensure that people do not abuse this form of treatment (Lee, 1999: 285; Winslow and Knoll, 1998: 2198). Intensive study must also be employed regarding the interactions these drugs may have with other drugs and medicine that may be used in biomedicine and herbal systems. Herbal drugs that have the potential to cause severe side-effects when taken in incorrect doses, mixed with other herbal remedies that are not compatible or are mixed with biomedical drugs, must be defined as demonstrated by Miller (1998). Therefore, before quickly incorporating medicinal plants into the biomedical system it is important to extensively research the full extent of their power and effects.

Significance

The many implications that herbal medicine can have on varying cultures and belief systems make this topic extremely important for anthropological study. Through the understanding of power relations and the political-economic factors of society, anthropology can help to implement programs that are more culturally sensitive. This will ensure that power structures and cultural systems are not disturbed and are in fact reinforced when implementing programs designed to improve public health. This may also support gender equality within our own culture through the understanding of the importance women's knowledge, the role they play within society and the benefits of having equal power among the sexes. Reassessments of programs and initiatives already headed by anthropologists and public health officials must be constantly adapting to changing realities and cultural systems. Anthropology can help understand this and can help programs that are sensitive to the changing realities and truths of other cultures (Clifford, 1986). This may help doctor-patient relationships by better defining ideas of what sickness is and by linking mind and body together in treating illness. Rather than replacing different medical systems, anthropology can help researchers to contribute to varying cultural systems. This can help biomedicine adapt to the changing needs of growing multi-cultural systems and can help to implement strategies for developing countries that will be more effective and culturally appropriate (Mogensen, 1997). Anthropologists are therefore needed for consultation on how to change and reform medical systems to increase overall public health.

Anthropologists not involved in the medical field are also essential for successful incorporation of herbal medicine into biomedical society. The role played by anthropologists regarding advocacy and human rights is perhaps the most important in this respect. The idea of cultural property and the rights of indigenous people must be constantly addressed and defended so that minority communities can gain increased human rights. To avoid the exploitation of indigenous people, knowledge and land, anthropologists must work with organizations like the United Nations to ensure that pharmaceutical and drug development companies are working ethically with indigenous people. Regulations must be developed forcing biomedicine

corporations to gain permission from indigenous people to share their knowledge and to provide adequate compensation when they deem it appropriate to give such knowledge.

Anthropologists must help in implementing programs such as Shaman Pharmaceuticals established by the International Development and Research Center (IDRC). This organization ensures that indigenous people have an equal role in obtaining herbal medicine, preparation, advising, employment through conservation area establishment and retribution from the sale of drugs (Shaman Pharmaceuticals, 1996). This will help to legitimize indigenous belief systems and ensure that environmental conditions of indigenous land are maintained. Anthropologists must also contribute to the stopping of detrimental development in these areas to ensure the protection of human rights and to avoid the destruction of valuable resources that could be used for medicine. This can be seen through the situation of the hydroelectric dam and Kayapo people of Brazil (Conklin and Graham, 1995). If the hydroelectric dam is developed in this nation, thousands of acres of indigenous land, which may contain valuable medicinal plants, may be destroyed (Conklin and Graham, 1995: 698). There are currently situations where local populations do not trust Western people because they are destroying land, imposing medical beliefs or trying to obtain herbal knowledge. Anthropologists are thus needed to help maintain relations with indigenous people and to help establish cultural property laws and to ensure human rights are maintained for indigenous people.

Conclusions

There has been a significant rise in the use and implementation of herbal medicine in North American culture. This increase has caused pharmaceutical companies to increase production and availability of these remedies for larger profits. This can greatly affect several different facets of cultural life for the industrialized nations incorporating this medicine and the indigenous people from whom this medicine was obtained. Medicinal plants are not a mere resource or commodity. The implementation of herbal medicine can have grave implications for many people in varying societies as well as having the ability to increase the quality of life and human rights. Therefore, much research needs to be done in all regions of the world if herbal medicine is going to be successfully implemented into biomedical programs and initiatives. Laws, restrictions and regulations need to be developed to ensure drug development and pharmaceutical companies are using medicinal plants properly. Human rights and the idea of cultural property need to be firmly incorporated for indigenous people to be compensated for the knowledge they provide. This type of legislation will help to ensure indigenous people remain in control of this knowledge and that their wishes are respected if they deny outside access to it. Implementation of programs and initiatives must be culturally sensitive in order to ensure that these societies are not disrupted with regard to power structure, economy, environment and community health. Anthropologists and social scientists must therefore accompany medical officials, doctors, development companies, pharmaceutical companies, environmentalists, scientists and indigenous people in creating new

precede implementation of herbal medicine in our society in order to maintain cultural relativity and human ethical standards. Once this research has been done, herbal medical systems have the potential to revolutionize health care systems and will increase over-all public health for all societies in which they are implemented.

* * * * *

References

- Anderson, Anthony and Darrell Posey
1989 Management of a Tropical Scrub Savanna by the Gorotoire Kayapo of Brazil. In *Resource Management in Amazonia: Indigenous and Folk Strategies*. D.A. Posey and W. Balee, eds. New York: The New York Botanical Garden.
- Bastien, Joseph W.
1990 Community Health Workers in Bolivia: Adapting to Traditional Roles in the Andean Community. *Social Sciences and Medicine* 30(3): 281-287.
- Bell, Jeanette
1994 Traditional Knowledge and Gender: the Caribbean Experience. In *Traditional Health Systems and Public Policy*. Anwar Islam and Rosina Wiltshire, eds. Ottawa: International Development Research Center.
- Bierlich, Bernard
1999 Sacrifice, Plants and Western Pharmaceutical: Money and Health Care in Northern Ghana. *Medical Anthropology Quarterly* 13(3): 316-337.
- Clifford, James
1986 Introduction: Partial truths. In *Writing Culture: The Poetics and Politics of Ethnography*. J. Clifford and G. Marcus (eds.) Berkeley: University of California Press.
- Conklin, Beth and Laura Graham
1995 The Shifting Middle Ground: Amazonia Indians and Eco-politics. *American Anthropologist* 97: 695-710.
- Dalen, James
1998 AConventional and AUnconventional Medicine. *Archives of Internal Medicine* 158: 2179-2181.
- Donley, Sister Rosemary
1998 The Alternative Health Care Revolution. *Nursing Economics* 16(6): 298-302.
- Eisenberg, David
1997 Advising Patients Who Seek Alternative Medical Therapies. *Annals of Internal Medicine* 127: 61-69.

-
- Elisabetsky, Elaine and Patricia Shanley
1994 Ethnopharmacology in the Brazilian Amazon. *Pharmacology and Therapeutics* 64: 201-214.
- Farmer, Paul
1999 *Infections and Inequalities*. California: University of California Press.
- Feldman-Savelsberg, Pamela and Flavien Ndonko, Bergis Schmidt-Ehry
2000 Sterilizing Vaccines or the Politics of the Womb: Retrospective Study of a Rumor in Cameroon. *Medical Anthropology Quarterly* 14(2): 159-179.
- Gaylord, Susan
1999 Alternative Therapies and Empowerment of Older Women. *Journal of Women & Aging* 11(2/3): 29-47.
- Hecht, Susanna and Darrell Posey
1989 Preliminary Results on Soil Management Techniques of the Kayapo Indians. In *Resource Management in Amazonia: Indigenous and Folk Strategies*. D.A. Posey and W. Balee, eds. New York: The New York Botanical Garden.
- Hibler, Michelle
2001 http://www.idrc.ca/reports/read_article_english.cfm?article_num=1023
- International Development and Research Center
1996 <http://www.idrc.ca/books/reports/1996/30-02e.html>
- International Development and Research Center
2001 http://www.idrc.ca/media/commplants_e2.html
- Iwokrama
2001 <http://www.iwokrama.org/general/operationalplan1998-2002.htm>
- Lee, Laurel
1999 Introducing Herbal Medicine into Conventional Health Care Settings. *Journal of Nurse-Midwifery* 44(3): 253-263.
- Mashour, Nick and George Lin, William Frishman
1998 Herbal Medicine for the Treatment of Cardiovascular Disease. *Archives of Internal Medicine* 158: 2225-2234.
- Miller, Lucinda
1998 Herbal Medicinals. *Archives of Internal Medicine* 158: 2200-2211.
- Miles, Ann
1998 Science, Nature and Tradition: The Mass-Marketing of Natural Medicine in Urban Ecuador. *Medical Anthropology Quarterly* 12(2): 206-225.

Mogensen, Hanne Overgaard

1997 The Narrative of AIDS among the Tonga of Zambia. *Social Science and Medicine* 44 (4):431-439.

Okoth-Owiro, Arthur

1994 Law and Traditional Medicine in Kenya. In *Traditional Health Systems and Public Policy*. Anwar Islam and Rosina Wiltshire, eds. Ottawa: International Development and Research Center.

Rasmussen, Susan

1998 Only Women Know Trees: Medicine Women and the Role of Herbal Healing in Tuareg Culture. *Journal of Anthropological Research* 54(2): 147-171.

Reeve, Mary-Elizabeth

2000 Concepts of Illness and Treatment Practice in a Caboclo Community of the Lower Amazon. *Medical Anthropology Quarterly* 14(1): 96-108.

Shaman Pharmaceuticals

1996 <http://www.shaman.com/Home2.html>

Trotter, G.

1999 Culture, Ritual and Errors or Repudiation: Some Implications for the Assessment of Alternative Medical Traditions. *Alternative Therapies in Health and Medicine* 6(4): 62-68.

Wayland, Coral

2001 Gendering Local Knowledge: Medical Plant Use and Primary Health Care in the Amazon. *Medical Anthropology Quarterly* 15(2): 171-188.

Winslow, Lisa and David Knoll

1998 Herbs as Medicines. *Archives of Internal Medicine* 158: 2192-2199.

Zhan, LinZhan, Lin

1999 Xi Young Hong: Health Practice in Chinese Older Women. In *Asian Voices*. Edited by Lin Zhan. Massachusetts: Jones and Bartlett Publishers.