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**ALOE VERA**  
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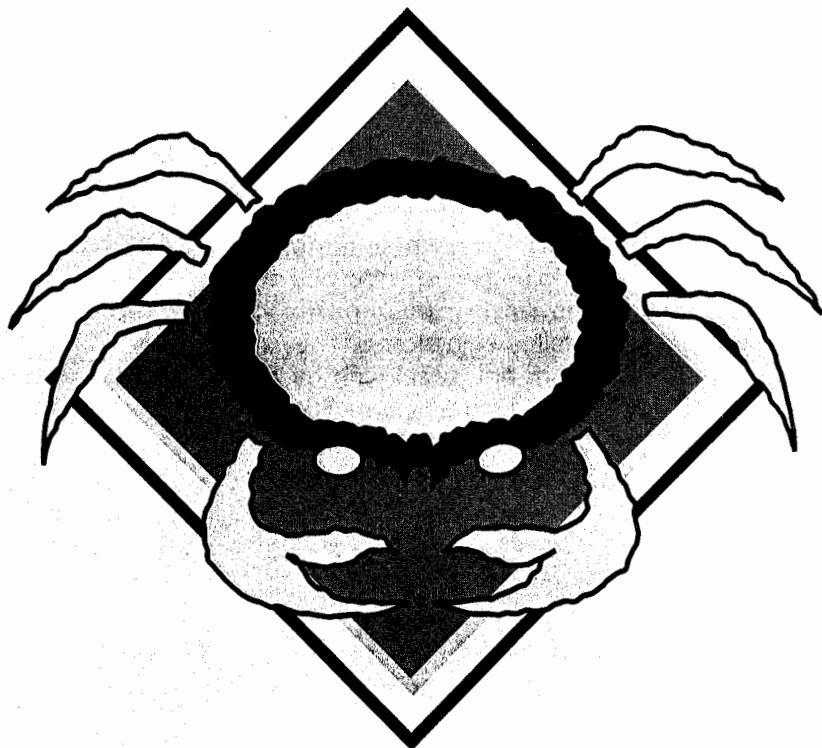
# ALOE VERA

## Aloe Vera and Cancer

By Dr. G. Lawrence Plaskett B.A., Ph.D., C.Chem., F.R.I.C.

Administration of Aloe Vera in various forms has been shown to inhibit the growth of animal cancers or to actually bring about shrinkage of already-grown tumours. From all the other knowledge we have about the actions of Aloe, it appears that the effects of Aloe upon tumours is mediated via the immune system.

This newsletter presents a general discussion of the formation and growth of cancers from the standpoint of Aloe and one other plant extract substance, bromelain, whose actions may well synergize usefully with those of Aloe.



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# ALOE VERA AND CANCER

## The Nature of Tumours, of Malignancy and of Tumour Cells

Malignant neoplasms or cancers have several distinguishing features that enable them to be characterized as abnormal. The commonest types of human cancers derive from epithelium, that is, the cells covering internal or external surfaces of the body. These cells have a supportive stroma of blood vessels and connective tissue. Malignant tumour tissues may resemble normal tissues; at least in the early phases of their growth and development. Cancer cells can develop in any tissue of the body that contains cells capable of cell division. Though they may grow fast or slowly, their growth rate frequently exceeds that of the surrounding normal tissue. This is not an invariant property, however, because the rate of cell renewal in a number of normal tissues (eg. gastrointestinal tract epithelium, bone marrow, and hair follicles) is as rapid as that of a rapidly growing tumour.

The term "neoplasm", meaning new growth, is often used interchangeably with the term "tumour" to signify a cancerous growth. It is important to keep in mind, however, that tumours are of two basic types: benign and malignant. The ability to distinguish between benign and malignant is crucial in determining the appropriate treatment and prognosis of a patient who has a tumour. The following are features that differentiate a malignant tumour from a benign tumour:

1. Malignant tumours invade and destroy adjacent normal tissue; benign tumours grow by expansion, are usually encapsulated, and do not invade surrounding tissue. Benign tumours may, however, push aside normal tissue and may become life-threatening if they press on nerves or blood vessels or if they secrete biologically active substances, such as hormones that alter normal homeostatic mechanisms.

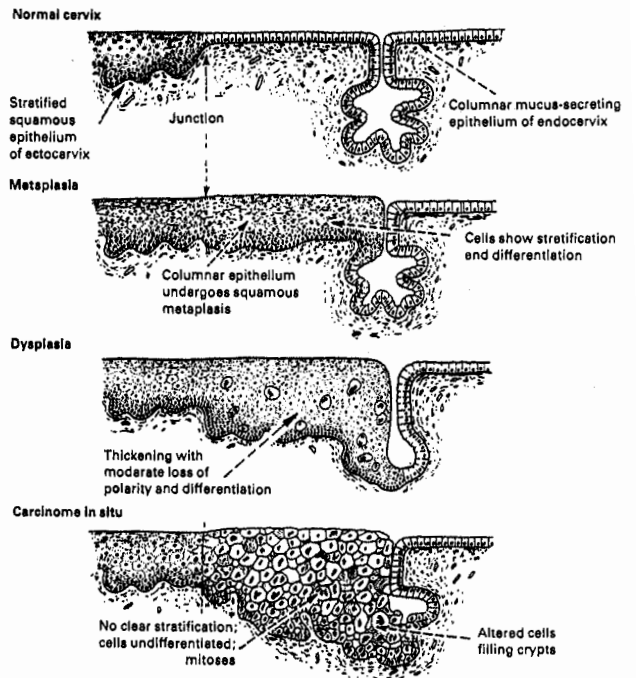
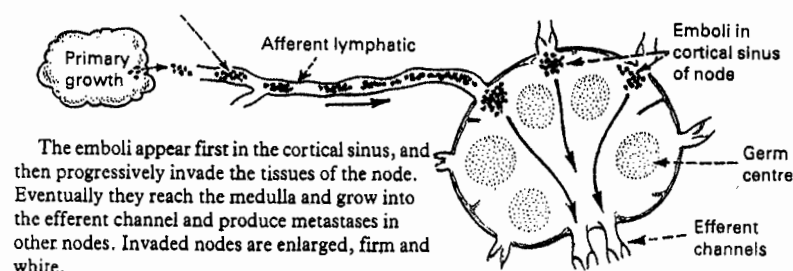


Figure 1 *Illustration of the way a malignant tumour grows out of control and with no functional purpose. The example shows cancer of the cervix (cervical carcinoma).*

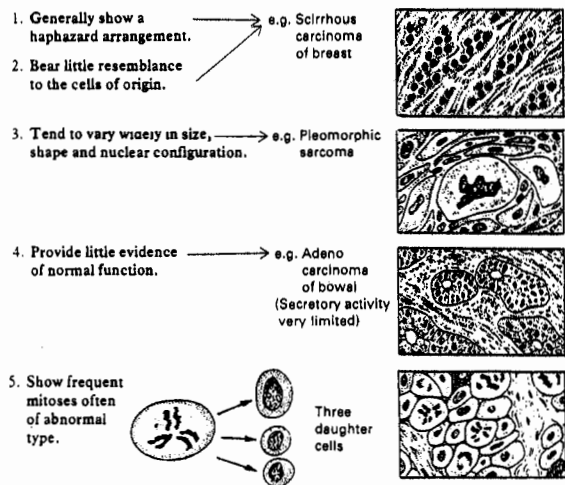
2. Malignant tumours metastasize (a word which means breaking off pieces that are then transported to other parts of the body, where they lodge and resume growth) through lymphatic channels or blood vessels to lymph nodes, bones, lungs and other tissues in the body. Benign tumours remain localised and do not metastasize.

3. Malignant tumour cells tend to be "anaplastic" (a word which means less well differentiated than normal cells into recognisable cell types of the tissue in which they arise). Malignant cells may actually show varying degrees of "anaplasticity" or "undifferentiatedness". Correlations are often drawn between the degree of anaplasticity and the degree of aggressive invasiveness which a tumour displays. The more differentiated, the less invasive, the more anaplastic, the more invasive. Benign tumours usually resemble normal tissue more closely than malignant tumours do.



The emboli appear first in the cortical sinus, and then progressively invade the tissues of the node. Eventually they reach the medulla and grow into the efferent channel and produce metastases in other nodes. Invaded nodes are enlarged, firm and white.

Figure 2 *Illustration to show the invasiveness of cancer spreading by metastasis through the lymphatics. The emboli, having grown substantially in one lymph node (gland) create a position from which the spread to other lymph glands is possible.*



Lack of differentiation is often termed anaplasia, and anaplastic tumours are highly malignant. There is a spectrum of change in neoplasms from the very slowly growing, highly differentiated simple types to the rapidly growing, undifferentiated malignant examples.

Figure 3 *An Illustration of Undifferentiated (Anaplastic) Cell Types*

Some malignant neoplastic cells at first structurally and functionally resemble the normal tissue in which they arise. Later, as the malignant neoplasm progresses, it invades surrounding tissues, and metastasizes, and the malignant cells may then bear less resemblance to the normal cell of origin. The development of a less well differentiated malignant cell in a population of differentiated normal cells is sometimes called "dedifferentiation." This term is probably a misnomer for the process, because it implies that a differentiated cell goes backwards in its development process after carcinogenic insult. It is more likely that the anaplastic malignant cell type, arises from the progeny of a tissue "stem cell" (one that still has a capacity for renewal and is not yet fully differentiated), which has been blocked or diverted, in its usual pathway towards forming a fully differentiated functional cell.

### The Process of the Generation and Growth of Cancers

At first it seems a little strange to have to admit that no-one actually knows just what happens when a cancer is first formed, because this seems to be such a basic thing that needs to be answered about the subject and, might one ask, where has all that cancer research money gone to if we do not know such a simple thing after so much research? But the fact is, that when a new human cancerous transformation takes place, no-one is looking. Nor are they even suspecting. Moreover, there is such a long gap between the time when first malignant change occurs and the time when the tumour makes itself felt by being physically noticed, or by

producing symptoms. Naturally, if the tumour is on the skin it is likely to be seen when quite small. If it is in your breast, you have a reasonable chance to palpate it when it is still reasonably small. But what do you do if it is in your liver, which you are not used to examining? In practice, nobody does anything except wait and see. Inevitably, liver cancers tend to be, on average, rather more advanced when first discovered.

The writer has heard a number of different estimates of this time interval, which elapses from the first malignant change, to the appearance of a diagnosable tumour. However, there is a widespread consensus that it is a long period. One authority has suggested 8 years but another suggested 20 to 30 years. One theory is that it depends to some extent upon the natural cell division rate in the particular tissue, which may be slower in one cell type and faster in another. Time factors of this sort partly explain why there is more cancer in older people.

Furthermore, it is clear that the process which produces a cancer is not a simple single-step event. Cancer production, or "carcinogenesis" involves a first step, called "initiation" followed by a process called "promotion". The first step requires the presence of a carcinogenic chemical, of the type referred to as an "initiator". Urethane is an example of such a substance. It seems that the initiator may only require an initial short exposure to produce its effect, which is then probably irreversible. There is probably a huge number of different possible "initiator" chemicals in the modern human environment. As they are numerous, and require only the shortest exposure to be effective, there is probably little practical hope for anyone to avoid exposure to this group of compounds, or to entirely avoid situations in which some of their tissues will be "initiated".

By contrast with the initiation, tumour "promotion" appears to be on a long time-scale. There are certain types of carcinogenic chemicals which have been found to be predominantly or solely "promoters". One of these, an archetype promoter, is the compound 12-O-tetradecanoylphorbol-13-acetate. Such a substance is extremely effective at promoting tumour generation from previously "initiated" cells, but if initiation has not previously taken place at all, then little, if any, cancer develops. The promotion phase appears to be itself a multi-stage process. From the evidence available, it looks as though, on the road towards cancer, one has many opportunities to take corrective action so as to remove the exposure to these "promoter" substances. The question of reversing the process is more problematic. Even if "promotion" is

reversible, the evidence strongly suggests that "initiation" is not. For most people, then, the most practical choice is probably that of taking the steps necessary to avoid the further step-wise "promotion" of a small population of already partly transformed cells (i.e. initiated cells) into full-blown tumours. "Promoter" carcinogens are probably rather more avoidable than "initiators", and, in any case, even to cut the exposure to initiators by 50% would extend the "latent period" for cancer development to, perhaps, between 40 and 60 years. Depending upon the subject's age at the time of "initiation", this might well permit the person to live a full life span and, indeed, they might well die from another complaint before cancer was even diagnosed.

#### CHEMICAL CARCINOGENESIS

This is a multistep process of long duration. The stages of initiation and promotion are important and are exemplified in experimental skin carcinogenesis.

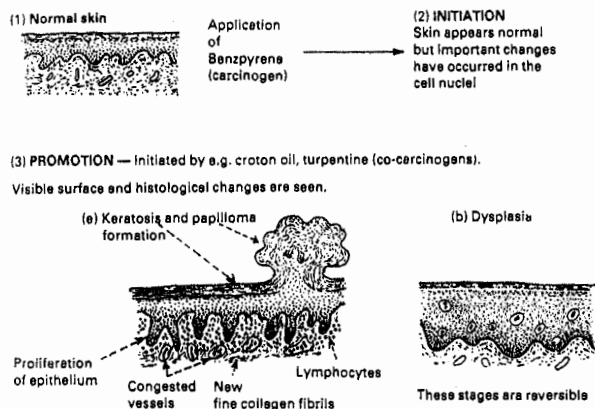


Figure 4 An Illustration showing how the Process of Carcinogenesis by Chemicals is divided into two phases, Initiation and Promotion.

Another way in which cancer promotion might be resisted by the body, is to support the cellular processes that are involved in the repair of damaged DNA. DNA stands for desoxyribose nucleic acid and it makes up the nucleic acids of the chromosomes and the genes which carry the genetic information. The cancerous transformation appears to be very often a process of damage to DNA, which alters the genetic information which the cell will pass on to its daughter cells when they divide. These cells, with their genetic information damaged in this way, appear to escape from the body's control mechanisms, which usually prevent normal tissue cells from multiplying out of control. This genetic damage appears to happen by stages and it can probably be arrested by stopping further exposure to the promoter substances. It can also be repaired by special enzymes, which effectively "cut out" the damaged lengths of the DNA chain and by other enzymes, (special DNA Polymerases) which "stitch in" a new length of DNA to match the original.

This repair process is in direct opposition to the "promotion" process. Hence, the more active one's DNA repairing mechanisms, the better resistance one is likely to have against the onward march of carcinogenesis. In this connection, nutrients which support the DNA repair mechanism, such as zinc, are bound to be important in cancer avoidance. Another aspect of nutrition, of importance in cancer avoidance, is the anti-oxidant nutrients. This includes the anti-oxidant vitamins, especially C and E, vitamin A to some extent, the anti-oxidant mineral, selenium and the sulphur amino acid cysteine and its tripeptide derivative, glutathione. This requirement for anti-oxidants is almost certainly there, because some of the carcinogens have to be oxidized before they become fully active. Hence preventing their oxidation offers a way of avoiding some of the effects of exposure to them.

Naturally, we also see a connection in Nutritional Medicine with the cell's energy producing mechanisms and its protein synthesising mechanisms. If these are kept active and competent, then the cell will be less impeded in its efforts to cleanse itself of toxins, including carcinogens, and to combat the damage caused to its structures by carcinogen exposure. Since both minerals and B vitamins are important in maintaining these cellular processes, these nutrients acquire an importance in cancer avoidance. This is an indirect connection, but nonetheless crucial, since if the cell's vitality is generally good it will be that much more effective in both eliminating carcinogens and also in repairing carcinogen-inflicted damage.

#### The Growth and Spread of Cancer

Eventually, if it is not checked, the "promotion" process leads to clumps of cells which have substantially transformed into a malignancy. By this time, it is too late to deal with the matter by preventive measures. The cancer is there and it must either be attacked and removed, or the whole organism will eventually succumb.

The task of doing this job falls upon the immune system. There is clearly a point at which the gradual process of tumour "promotion" culminates in the production of an actively growing tumour. There is also a point in the process of cellular change leading up to this, where the surface of the transforming cell alters to the point at which it becomes recognisable to the immune system as being "foreign" and different from the normal cells, so that it becomes subject to attack from "killer" lymphocytes of the immune system. One view of the process of "promotion" is that the transforming cells are immunologically distinct and subject to

attack from the immune system, well before the malignant transformation is complete. According to this view, the population of multiplying partly transformed cells is subject to decimation by the immune system in the early stages, as a result of which a process of "natural selection" occurs, and those partly transformed cells that are most readily recognised by the immune system are selectively removed and killed.

The surviving members of that population are necessarily those which have not been so decimated and these will always be the least immunologically recognisable members. This process takes time - which in part explains the long time-scale for the emergence of tumours - and ensures that the cells which constitute the tumour are the least susceptible to further attack.

By the time a diagnosable tumour has appeared it necessarily means that the immune system has been overcome up to that point and is losing the battle. We know that, given the correct conditions, the immune system can be reactivated and the tumour may yet be overcome, but this will not happen unless the conditions under which the cells are operating are changed. This is the basis of the Gerson Therapy approach to cancer, the basis of all Nutritional Medicine approaches to cancer, and, indeed, in their different ways, all truly holistic approaches to cancer.

The view is often expressed that the immune system more often wins this fight than losing it. This view maintains that in each and every normal person, the malignant change occurs at least once in a lifetime, and perhaps several times in a lifetime, but the competent and non-compromised immune system successfully removes the transformed cells without our knowing anything about it. If we relate that point of view to the account that has been given above of tumour initiation and promotion, then it is perhaps more likely that pre-cancerous forms, i.e. partly transformed cells, are actually being mopped up before they reach the fully malignant condition. Little microscopic clumps of malignant cells or of partially transformed cells are likely to be a small problem to the healthy immune system. When these are not destroyed, but have been allowed to develop into a diagnosable and perhaps sizeable tumour, the situation really has become out of hand. It is far harder for the body, no matter what help it may then receive, to destroy this fully developed tumour and to remove all the debris that will result from tumour cell death, in the event of the belated immune attack eventually being successful. This is why surgical operations to remove the tumour are often helpful at this late stage, leaving the recovering immune system to mop up any microscopic tumours or cell clusters that then remain.

There appear to have been no human trials organised to discover whether or not *Aloe vera* is effective or supportive in cancer therapy. Therefore, the evidence we have is of a lesser kind. At this stage it would, indeed, be grossly irresponsible of anyone to offer *Aloe vera* as an effective cancer treatment, or, even worse, as *the cure* for cancer. Nonetheless, the indications that are available from the literature, showing that *Aloe vera* has an anti-cancer effect, either upon cells in tissue culture, or in the living animal, are most impressive. Of course, effectiveness in animals cannot be safely extrapolated to effectiveness in human cases. It is amazing, however, that in view of all the positive indications which exist for the anti-cancer effects of *Aloe vera*, that no medical studies have been initiated in human cancer.

What has been explained above shows that cancer apparently, only develops when the immune system is sufficiently compromised to allow the abnormal cells to grow. The profound positive effect of Aloe on the immune system has already been fully discussed in Newsletter No.1. We begin, therefore, from a very positive aspect, that it is inherently likely that an agent which galvanizes the immune system so successfully against bacteria, viruses and fungi, will also have a certain strengthening and encouraging effect when it comes to tumours.

The first definite reference to an anti-cancer effect of Aloe which this author has found, is dated 1969, in a paper by Soeda of Japan. There was a further such reference by other authors from Japan in 1972. These were reports on the use of Aloe to treat animals with tumours, and showed that the tumours were inhibited. This type of work continued to be carried out by Japanese workers. Papers appeared by Yagi et al (1977), Suzuki (1979), Imanishi et al (1981), Yoshimoto et al (1987) and Imanishi (1993). This work all concerned animal tumours and was carried out either by treating animals that were carrying tumours and demonstrating inhibition of the tumours, or by studying the immunological aspects of the problem, for example, by looking at the activation of the animals T-lymphocytes of the type which would have the job of tackling the tumour cells. Some of these papers were primarily concerned with isolating and studying fractions of the polysaccharide from Aloe and finding out which ones exhibited anti-tumour effects. One interesting aspect of the above, is that the work of Soeda (1969) was carried out using Cape aloes (*Aloe ferox*) and preparations of Cape aloes usually contain the so-called "aloin" fraction of the Aloe - a group of compounds known as anthraquinones, and related substances, - which are best known for their

purgative effects - but which are usually mostly removed from Aloe preparations of Gel or Whole Leaf because their purgative effects would be unwanted.

Much of the other work used *Aloe arborescens* and this work is generally carried out with Whole Leaf Extracts. Where Whole Leaf Extracts have been used as such, there is once again room for speculation that components of the aloin fraction may have some contributory role in the biomedical activity. However, very often the material used in the studies was a separated fraction isolated from an original Whole Leaf Extract and composed either of polysaccharide or glycoprotein. In these cases, it is more probable that the aloin components were largely or wholly removed and that the activity resided in these higher molecular weight biomolecules, most particularly in the "glucomannan" fraction.

There is also some tissue culture work done in the USA by Winters et al (1981). In this work, fractions of extracts of fresh leaves and commercially "stabilized" *Aloe vera* Gel were obtained which contained high levels of polysaccharide or glycoprotein. Substances in fluid fractions from these extracts were found to markedly promote attachment and growth of normal human cells, but not tumour cells, and to enhance healing of wounded cell mono-layers. This experiment is, perhaps, far from the *in vivo* condition (i.e. in the living animal), but it may be interpreted that the activities of normal cells, and especially the growth of normal cells, were being enhanced by the *Aloe vera*, but not those of the tumour cells, an outcome which should favour the eventual predominance of normal cells.

The state of these investigations, lacking human trials, leaves one simply failing to understand why favourable laboratory studies have not been followed up with any form of clinical trial. This author would unhesitatingly use *Aloe vera* in cases of cancer where the patient was seeking a way back to normal health by natural means. This is because he takes the view that where a particular biomedical activity has been demonstrated, and where the agent concerned is definitely completely harmless and many beneficial effects have been shown, then it is in the patient's interest to use the substance. He sees no need to wait for a formal proof of benefit for the particular disease state. After all, the fully confirmed information which we undoubtedly possess about *Aloe vera* shows it to be a most potent biomedical agent, which is without doubt good for the patient - whatever it may or may not do for a particular named disease. Medical practitioners are there, first and foremost, to take actions to benefit patients.

The book by Lee Ritter "*Aloe vera - A Mission Discovered*" (1993) takes a more bullish view of the situation regarding *Aloe vera* and cancer, reporting one case of a "cure" in a patient who had 17 liver tumours and was cured and another who had breast cancer and who was "cured" by means of *Aloe vera*. The present author does not necessarily disbelieve the truth of these statements or the fact that the cures occurred, but the reiteration of such curative incidents does nothing to establish the role of Aloe in the minds of the sceptical. These reports will always be dismissed as anecdotal, however many of them there are, and they do not even begin to substitute for properly organised clinical trials.

No papers have been found dealing specifically with benign tumours and Aloe, but many of the same principles would be expected to apply as with malignant tumours.

### **Lack of Clear Evidence of Anti-Carcinogenic Effect with Aloe**

The Scientific Literature does not appear to offer us clear evidence at the present time, of any direct effect of Aloe in preventing carcinogenesis itself. That is to say, Aloe is not known to prevent the initial transformation which produces cells with tumour-forming potential, by affecting either the initiation or promotion processes. That does not mean that Aloe has no such effect, but it has not been shown. Therefore, on present knowledge it would seem best to rely, for avoidance of the carcinogenic process, on keeping the cell metabolism in good trim generally by excellent nutrition, by cleansing and avoiding intoxication, particularly exposure to carcinogens. Over and above this, the indications are that the generous use of anti-oxidants can be very helpful to help to keep the carcinogens in inactive forms. This is true of those anti-oxidants which are essential nutrients, such as the anti-oxidant vitamins, but also many important plant substances not necessarily recognised as essential nutrients, such as the carotenoids and flavonoids.

### **The Cleansing Action of Aloe**

The combined result of the immuno-stimulant effects of Aloe and the effects which Aloe exerts upon the digestive system, is certain to produce an overall cleansing action on the body. We have the stimulation of immune cells in cleaning up debris and toxins all over the body and the beneficial effects of improved bowel conditions - in particular the benefits of reduced putrefaction in the large bowel. The overall benefit to the toxic burden of the patient will inevitably be great. It

seems apparent, that any action which cleanses will produce a reduction in the dangers of carcinogenesis, both by promoting the actual removal of carcinogens from the system and by freeing the enzyme systems of the energy producing pathways from toxic inhibitors, making more energy available for self-cleansing. Therefore, it can be relied upon that Aloe, whilst it may not interfere with carcinogenesis directly, will indirectly reduce the likelihood of the carcinogenic change occurring.

### Secondary Beneficial Actions of Aloe in Cancer

The existence, growth and spread of cancer puts the body under great strain. The immune system is having to combat the cancer cells, clear away debris left by the death of cancer cells - and many of them do die, by out-stripping their blood supply - and often also in resisting infections which occur as an indirect result of the cancer's presence. The fighting of bacterial infections which result from the presence of cancer, is certainly a process in which the known actions of Aloe can be most supportive. Moreover, damage caused by the advancing tumour gives rise to inflammation and pain which Aloe can be expected to partially relieve.

### References citing work on the effect of Aloe on tumour cells

Title or Subject	Authors	Date	Reference
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Reference to Anti-tumour Polysaccharide	Okada, T., Yoshida, Y., Ikekawa, T., Chihara, Nishioke, K.	1972	Nature New Biol. <u>238</u> 59-60.
"Aloe Mannan, Polysaccharide, from <i>Aloe arborescens</i> var <i>natalensis</i> ". Has anti-tumour effect.	Yagi, A., Makino, K., Nishioke, I., & Kuchino, Y.	1977	Planta Med. <u>31</u> 17-20.
Alexins A & B and suggested uses in treatment. Includes reference to tumours.	Suzuki, J., Fujita, K., Oshida, J., Shingo, K., Inoue, S., & Saito, H.	1978	Experimentia <u>34</u> 523.
Short overview of constituents, includes both tumour and lectin-like effects.	Suzuki, J.	1979	Jpn. Kokai Tokyo Koho <u>79</u> 84018 Chem. Abs <u>92</u> 11213x
"Pharmacological studies on a plant lectin alectin A - growth inhibition of mouse methylcholanthrene induced fibrosarcoma (Meth A) in ascites form by alectin A"	Imanishi, K., Ishiguro, T., Saito, H., & Suzuki, J.	1981	Experimentia <u>37</u> 1186-1187.
"Effects of Aloe Extracts on Human Normal and Tumour Cells in Vitro".	Winters, W.D., Benavides, R., & Clouse, W.J.	1981	Economic Botany <u>35</u> (1) pp 89-95.
"The Aloe Phenomenon: A Review of the Properties and Modern Uses of the Leaf Parenchyma and Gel."	D. Grandis and T. Reynolds	1986	Journal of Ethnopharmacology <u>16</u> 117-151.
"Plant Lectin ATF-1011 on the Tumour Cell Surface Augments Tumour-Specific Immunity through Activation of T-Cells Specific for the Lectin"	Yoshimoto, R., Kondoh, N., Isawa, M., Hamuro J.	1987	Cancer Immunol. Immunother. <u>25</u> (1) 25-30.
"Aloctin A, an Active Substance of <i>Aloe arborescens</i> as Immunomodulator"	Miller, Imanishi, K.	1993	Copies available from the Aloe Vera Information Service.
" <i>Aloe Vera</i> , Hydro-cortisone, and Sterol Influence on Wound Tensile Strength and Anti-Inflammation."	Davis, R.H., Didonato, J.J., Johnson, & W.S., Stewart, C.B.	1994	Journal of the American Podiatric Medical Association, <u>84</u> 614-621.

## The Supportive Action of Bromelain

Whilst this Newsletter is principally about Aloe, but it is recognised that patients and Practitioners who are interested in Aloe are dedicated to, or at least seriously interested in, natural approaches to medicine, and that they may have a bent towards "phytotherapy" or the use of herbs or herbal extracts as medicines. Therefore, most recipients of Aloe Newsletters may well be interested to hear about another plant substance, bromelain, which is also the subject of much informative scientific literature. It is derived from pineapple stem juice, though it is also present in pineapple fruit. Many of the known actions of bromelain are such that it is likely to be distinctly supportive of any attempt to fortify the human immune system with *Aloe vera*, and if the reason for so doing is cancer treatment or cancer avoidance, then the case for using bromelain in support is very strong. For this purpose bromelain should ideally be given at a substantial dose. Some useful effects have been observed at dose levels of 500-600mg per day (for which 5 to 6 100mg tablets/day might well be used) and greater effects when bromelain is used at levels up to 1000mg - 1500mg/day.

The effects of bromelain on cancer appear to be threefold. Firstly, there is an inhibition of tumour growth in response to bromelain, just as with *Aloe vera*, so the effects of these two substances acting together are likely to be fortified. Bromelain inhibits tumour growth, just as *Aloe* does, by stimulating the immune system. Published studies have shown that bromelain stimulates macrophages to phagocytose more actively and to produce "tumour necrosis factor". One study has shown that other immune system cells, such as neutrophils, are also stimulated to produce tumour necrosis factor. In one study isolated macrophages were treated with bromelain to activate them and then were re-injected to exert their increased anti-tumour potential, within the animal they came from.

Secondly, bromelain has been shown to inhibit the metastasis (spreading to distant parts) of cancers, which is potentially a most important effect for the containment of cancer. Thirdly, in the case of leukaemia cells it has been shown that bromelain affects them, inducing them to "redifferentiate", that is to say, to take up a form closer to the form of normal lymphatic cells, losing some of their anaplasticity. Obviously, cells which are altered in this way by bromelain become, in the process, more normal and, by implication, less cancerous. Overall, bromelain therefore appears to be a potent factor when dealing with natural cancer therapy or prevention, since it has several different effects which all tend to be anti-tumour in their end result.

## Situations in which Aloe and Bromelain are likely to be Used

Obviously, notwithstanding the present lack of human clinical trial, there is a strong case for including Aloe and bromelain in cancer therapy of all kinds. The Orthodox profession is unlikely to choose to use them, however. In the Alternative disciplines we have the clear option of doing so, on the grounds that both substances are harmless and have been shown to exert distinctly favourable biological actions. They are therefore available as a well-indicated adjunct, wherever a decision has been taken to treat active cancer naturopathically or nutritionally, for whatever reason. That reason can be, because the patient prefers it that way on principle, or because Orthodoxy has reached the end of the road with the patient concerned and has withdrawn further treatment. However, a far more common situation in our practices is where a patient has taken orthodox treatment, for example, surgical operation, and then been declared free of cancer so far as anyone knows. Neither orthodox practice, nor the alternatives have any way of seeing the microscopic tumours or cell clusters that are likely to remain in such circumstances. Treatment with Aloe and bromelain seem particularly appropriate in such cases. In still other cases, there may be a particular risk factor for cancer, though no cancer has been discovered. This would be the case with, for example, polycystic breast disease, which is precancerous or when a cervix smear test shows up suspicious or altered cells. The use of Aloe and bromelain in such cases can be offered as a promising adjunct therapy along with other precautionary healing and cleansing treatments.

