

Chapter 13

Candida Albicans

Possibly two-thirds of M.E. sufferers have their condition made worse by an infection with the yeast called Candida. This is a controversial subject, and there are widely differing opinions within orthodox and alternative medical professions. At one extreme are people who claim that Candida is the No.1 culprit in all M.E. patients, and that if you can get rid of it you will be a great deal better, or even cured. At the other end are those who cannot accept that Candida infection has anything whatsoever to do with M.E., or indeed any ill health, and who feel trying to treat it is a waste of time.

A lot of people have now heard the word Candida, but for those who have not, Candida Albicans is one of the many bugs which is to be found living in and on all of us. It is a fungus, one of the yeast family of organisms, and is best known for causing thrush in the mouths of babies - sore white, moist plaques in the mouth and on the tongue, and thrush in the vaginas of women (which is where the babies pick it up, during birth). It can also cause nappy rash, and soreness and itching around the anus and genitals in adults.

This yeast lives in small numbers in the gut, and on the skin, especially in warm moist areas. In a healthy person with a strong defence system, Candida keeps its place and does not cause any symptoms. It is so prevalent that at least 90 per cent of children have had exposure to it by the time they are six months old (based on tests done on skin reactions).

The most extreme cases of Candida infection in all parts of the body (including the bloodstream, lungs and brain) are in ill people with severely collapsed immunity. These include some leukaemia sufferers, people on immuno-suppressive treatment, those with overwhelming infections which wipe out the bone marrow, or those with advanced AIDS.

It must be emphasised again that the mild immune dysfunction in the M.E. syndrome is quite different to the immune failure seen in the above examples.

Candida is only one of a huge variety of yeasts, viruses and bacteria which live on, in and around us. The large bowel contains several pounds in weight of bacteria, most of which are necessary for the manufacture of some vitamins, the fermentation of undigested food, and the breakdown of mucus. They stay in their place because of the colon wall and the body's efficient immune surveillance system.

There are some circumstances which may allow Candida to multiply and cause trouble:

Factors that Favour Candida Overgrowth

- Warmth and moisture
- Sugar - e.g. in diabetes, excess sugar in diet. (Bread rises with yeast and sugar, and sugar is needed to ferment alcoholic drinks).
- A weakened defence system
- Altered hormone levels - such as are caused by the contraceptive pill, pregnancy, steroid drugs (cortisone, prednisolone).

- Taking broad-spectrum antibiotics - because these not only kill off the bugs that are making you ill, but also destroy large numbers of the friendly bacteria that exist in the colon.

The fact that broad-spectrum antibiotics kill off significant numbers of friendly bacteria leads to a relative 'overgrowth' of yeasts which are left unharmed by antibiotics. The imbalance of microbes thus created is known as dysbiosis - a disharmony of bugs.

Dysbiosis may contribute to many conditions of ill health, including M.E. Although not recognised by many doctors, dysbiosis is known to and treated by veterinarians. Antibiotics used for a short course, and selected to kill specific bugs, such as penicillin for tonsillitis, do less harm. It is the broad-spectrum antibiotics, designed to 'kill all known germs', that cause dysbiosis, especially if given repeatedly or over a period of time.

Two conditions for which long-term broad-spectrum antibiotics tend to be prescribed are acne and recurrent cystitis. It is unfortunate that these problems may actually be caused by a Candida infection, and made worse by antibiotics.

Another source of long-term antibiotics may be from meat and poultry that comes from intensively-reared animals. Their foodstuff may have antibiotics added to prevent infections that result from poor, overcrowded conditions. The quantity is of course small, but must have some effect on humans over a period of time.

Let us not ignore the fact that antibiotics have saved thousands of lives. Pneumonia used to kill many people, and infection and gangrene killed many thousands in the First World War. In the last two decades there has been a tendency to overprescribe broad-spectrum antibiotics, however, often using them as an umbrella lactic, instead of encouraging the body to overcome what may be quite a minor infection, or for a virus infection which is not touched by antibiotics anyway. So a generation has grown up who may have had antibiotics many times in childhood for ear or throat infections, in adolescence for spots, and as young adults for bouts of flu or bladder infections.

Given favourable conditions, Candida can proliferate quite fast, and cause local symptoms:

- vaginal thrush
- cystitis
- infection of prostate gland and male genitals
- skin rashes of the groin or armpits
- fungal infections of the nails
- white patches and ulcers on the gums and mouth
- infection of tongue, throat and gullet

These are all surface infections.

It is thought that Candida may produce toxins by its action on fermenting sugar, producing a nasty substance called Acetaldehyde. This would explain why the symptoms of a bowel Candida infection can resemble those of an alcoholic hangover, i.e. headache, nausea, lack of concentration, irritability, and a general feeling of having been poisoned.

The ability of Candida to ferment sugar is the basis of the sugar fermentation test used in investigations of the gut.

Candida may possibly contribute to many conditions including cystitis, prostatitis, endometriosis, irritable bowel syndrome, vaginal discharge, premenstrual tension, rapid mood changes, sudden weight gain, joint pains, muscle aching, fatigue, athlete's foot, acne, sneezing, asthma, food, chemical allergies, abdominal bloating, and loss of sexual drive.

These symptoms may result not from the yeast infection itself, but from hypersensitivity to Candida Albicans.

As you can see, much of this list overlaps with typical M.E. symptoms. However, there are some clear indications of Candida overgrowth or hypersensitivity.

Candida Assessment Guide

History

- Have you been on oral contraceptives for a year or more?
- Have you ever had Steroids (prednisolone, cortisone)
- Have you had frequent courses of antibiotics, or a course lasting six weeks or more?
- Have you had long-term antibiotics for acne?
- Have you been pregnant?
- Have you had immuno-suppressant drugs?

Symptoms

- Have you had cystitis, vaginitis, or prostatitis?
- Have you had thrush more than once?
- Have you ever had fungal infection of nails or skin, e.g. athlete's foot?
- Do you have chemical allergies - worse from exposure to tobacco smoke, petrol, perfumes, paints, etc.?
- Are your symptoms worse in damp weather or in a damp and mouldy house?
- Do you have premenstrual bloating, irritability, or rapid mood swings?
- Do you have bloating after meals, or alternating diarrhoea and constipation?
- Are the symptoms worse for eating sweet foods, or alcohol?
- Do you crave sweets, or alcohol?
- Do you have an itching or burning sensation in the anus?

If you answer yes to one or more of the history questions, and have two or more positive symptoms, then it is likely that Candida plays some part in your illness. However, Candida does not cause M.E., it is just one of the possible complications. 'Chronic mucocutaneous candidiasis' is a common complication in immunodeficiency affecting T lymphocytes' (Matthews, 1988).

There is no one reliable blood test that can tell you if Candida Albicans is causing your symptoms. However, the combination of finding antibodies to Candida, together with changes in T lymphocytes in the blood, have been found in most patients with obvious Candida-related illness in a study in the USA. Skin testing with diluted Candida extract produces a positive result in most of the population, so this test does not help. Candida can be isolated from the gut of everyone, if it is looked for. The best test at present is to treat it and see if symptoms improve.

It is quite possible to have a Candida problem without having the obvious symptoms, such as thrush. Chemical sensitivity and an intolerance to some foods are extremely common. The headaches, irritability, lethargy and lack of concentration that are so common in M.E. may result from:

- a) the virus interfering with brain cells
- b) toxins such as acetaldehyde, produced by Candida
- c) chemical sensitivity
- d) absorption of larger than usual molecules of partially digested food, particularly proteins.

Before studying ways of overcoming Candida infections please understand that:

- a) not everyone with M.E. has a Candida problem although probably at least two-thirds are affected, this figure is based on a questionnaire study, and is probably an underestimate.
- b) treating Candida effectively will make you feel better if there is a problem, and may well clear up or improve the allergies. You will not cure M.E. immediately. However, through removing one of the stresses on the immune system the body's natural healing powers will have a better chance of fighting M.E.
- c) if you are going to embark on an anti-Candida programme, it is worth giving it a serious trial for a least three months, rather than doing it half-heartedly and then deciding it doesn't work.

There are three parts to the attack on Candida:

- 1. modifying the diet to starve it of sugar
- 2. strengthening the body's natural resistance with nutritional supplements
- 3. taking specific anti-Candida medication.

The Anti-Candida Diet

The reasons for making changes in how you eat are to deprive Candida of its nourishment, which is sugar, to avoid consuming any other moulds or fungi, and to eat nutritiously to strengthen the natural defences.

Now, if you have put into practice the guidelines for healthy eating described in Chapter 11, then you are half way there. A strict anti-Candida diet would also prohibit bread made with yeast, cheese, vinegar, anything else fermented such as soy sauce; it would also restrict carbohydrate intake to about 80 gm a day, and would prohibit milk and its products. What is more important than restricting carbohydrates is to cut out all refined carbohydrates – sugar of all kinds and refined flour, and to eat more complex carbohydrates.

If an M.E. patient is already underweight, he or she must not embark on a diet which is going to make him or her lose even more. It is just as important to feed the patient as to starve the Candida. A strict regime also advises no fruit. In practice, a sensible compromise is to have no more than one piece of fresh fruit a day, and to avoid those high in sugar (honeydew melon, bananas) and those with yeasts or the skin (grapes).

Foods Allowed

- Potatoes
- Fresh vegetables of all kinds, especially garlic, onion and members of the cabbage family
- Meat, fish, eggs - preferably antibiotic and hormone- free
- Wholegrains - brown rice, oats, muesli (no sugar), crispbreads, oatcakes, wholemeal pasta
- Pure vegetable oils
- Freshly shelled nuts
- Pulses- lentils, beans, soya (but caution if these products give you gas, and they must be well-cooked)
- Water, tea, fresh fruit juice, such as squeezed orange

Foods to Avoid

- Sugar of all kinds - including molasses, honey, and brown sugar
- Anything containing sugar - read labels
- Alcohol in all forms - it makes M.E. and Candida patients ill
- Fermented food and drink - vinegar, ginger ale, soy sauce, tofu, miso, tempeh (all soya derivatives), buttermilk, cheeses - especially blue cheese
- Ready shelled nuts and dried fruit. These often have moulds on the surface, and dried fruit is rich in fruit sugar
- Melon and grapes
- Mushrooms and truffles
- Fruit juices, unless freshly squeezed
- Anything pickled
- Any food which is mouldy, so vegetables and fruits should be as fresh as possible

Foods Allowed in Moderation

- Wholemeal bread - ideally none at all if made with yeast for the first four weeks, then perhaps two medium sized slices a day if tolerated (if not, it will probably cause bloating and worsening of symptoms)
- Milk, live, unsweetened yoghurt
- Cottage cheese
- Fresh fruit

On a really strict diet, you would not have anything from this final category, nor any milk or milk products. It is thought that the lactose in milk helps feed Candida. If you feel you want to try the strict diet for the first four weeks or so, that is fine, provided you eat enough overall, and do not find the whole exercise too stressful. A lot depends on how you have been eating up till now, your weight, and also your motivation.

The most important things to avoid are: sugar, alcohol, and fermented foods.

Until recently, the standard advice given was to avoid eating anything containing yeast, moulds or fungi. Dr William G. Crook, in his book *The Yeast Connection*, believes that not all Candida patients are affected by other yeasts. He suggests that one should cut out all yeast-containing foods for at least a week, then test to see if yeast causes trouble. This can be done by chewing a fragment of brewer's yeast tablet. If no symptoms develop after 10

minutes, continue to have pieces of yeast tablet for an hour, then a whole tablet if there is no reaction. Then try some food such as mushrooms the next day. Of course, if there is any reaction early on in the testing, you should stop and either assume you have a yeast sensitivity, or try again a few days later.

The point of finding out if other yeasts and moulds affect you is that if they do not, then you can eat ordinary bread. Dr Crook advises that even if one is not yeast sensitive, a person trying to deal with Candida should still be moderate in having yeasts and moulds in his or her diet, and should stop them and retest if the condition gets worse.

Another great benefit from finding you are not affected by yeasts is that you can take brewer's yeast tablets as Vitamin B supplements; they are also the best source of Chromium, a mineral which is essential for proper blood-sugar control.

However, alcohol should still be avoided, whether or not yeasts upset you.

A person who already enjoys healthy eating will find the anti-Candida changes easier.

Supplements

Probiotics

Unlike antibiotics, probiotics replenish the families of friendly bugs living in the colon, and therefore they restore normal balance and help displace Candida. There are various preparations on the market, the most effective being a mixture of *Lactobacillus acidophilus* and *Bifidobacteria*. *L. acidophilus* occurs in some yoghurt cultures, and can be bought in capsule, powder or tablet form. Yoghurt, to be of any use, must be live, not pasteurized.

Probiotics should be taken between meals, one capsule or ½ teaspoon of powder (or as instructed) three times a day. The *L. acidophilus* and *Bifidobacteriae* should multiply in the large bowel and gradually build up numbers there.

Another way to take probiotics is to start your own yoghurt culture, using some of the organisms from the marketed probiotic preparations. This produces a yoghurt with a more powerful brand of the correct bugs than most ready-made brands. Even people who are lactose intolerant can usually cope with yoghurt, because the lactobacilli and other bugs eat the lactose while they are turning the milk into yoghurt. The longest-living peoples of the world, found around the Black Sea, reputedly eat a lot of yoghurt.

Other Supplements to Help fight Candida

Magnesium seems to be important for people with Candida infection. For some reason it does not appear to be absorbed, or else is lost to the system. At least 300 mg daily should be aimed at, and make sure you are getting vitamin B₆ in your daily pills.

Also especially helpful against Candida are:

- Biotin - 300 mcg, taken with acidophilus
- Garlic - fresh, as much as you can stand; use the flesh and juice immediately after crushing, in salad dressing or mixed with any food; if left it deteriorates and develops an unpleasant smell. The best bought garlic comes in freeze-dried enteric coated

capsules, from health food shops. Garlic perles are less effective, as much of the antifungal part has been removed in the processing.

- Cold-pressed olive oil - about a tablespoon daily, such as on salads. It is the oleic acid which has natural antifungal properties. Perhaps this is why a lot of M.E. and Candida symptoms seem to improve during a holiday in Greece, Italy or Spain?

Antifungal Treatments

Nystatin

Nystatin and fungilin (see below) are the most commonly used agents to kill Candida. There is little point in having treatment with nystatin without employing dietary means, however, because if the conditions in which Candida flourished are not altered, then the symptoms will just keep recurring. This is borne out by thousands of women with recurrent thrush, who have many repeated prescriptions of nystatin or other pessaries, but no advice about changing the body environment to discourage Candida - so, naturally, all the nystatin does is to suppress the problem temporarily.

Nystatin comes in tablets, suspension (for babies and children), vaginal pessaries, and powder. For treating general symptoms of Candida overgrowth, the powder preparation seems to work better than the tablets.

Because the start of treatment frequently brings on more severe symptoms, due to a "die-off" reaction from dead and burst yeast cells, it is essential to start with small doses.

It is also best to start by starving Candida of sugar, so have at least two weeks on the anti-Candida diet, probiotics and supplements before starting on nystatin or fungilin.

Dosage

Start with one tablet or 1/8 teaspoon of nystatin a day. Each of these has 500,000 units of nystatin.

After two days increase to twice daily, and after another two days to four times daily - i.e. a total of four tablets or 1/2 teaspoon of powder per day.

The powder does not dissolve well in water, but a good way to mix it is to put the day's total dose in a small bottle, such as an empty vitamin container, add water, and shake vigorously with the top screwed on. Then divide this mixture into two or more lots, and mix each lot with more water. This saves further mixing and stirring, and you'll know you have taken the day's quota.

After two or three days, you may feel much worse. All the worst symptoms may be magnified, and you may feel quite awful abdominal pains, sweating, headache, rapid pulse, insomnia, crying, etc. Do not give up! These signs mean that Candida yeast spores are bursting and dying, and releasing their toxins into your system.

Drink lots of water, take extra vitamin C, and carry on with the nystatin. After a further few days it will all get much better. If the reaction is really unbearable, go on with the nystatin but

in a tiny dose for a few days, then start gradually building up again. Nystatin has a nasty taste. If you cannot bear it, a little diluted fresh fruit juice in the mixture is permissible. The maximum dose of nystatin tolerated may be up to 4 million units daily, i.e. 8 tablets of ½ million each, or 1 teaspoon (heaped) of powder.

Powder or Tablets?

Tablets are much easier to take, help you avoid the unpleasant taste, and are more readily obtainable on prescription in the UK.

However, powder reaches parts that tablets don't: Candida lurks in the mouth, between the teeth, and in the throat, nose, and gullet. If you can obtain powder and tablets, then a good compromise is to take powder when at home and tablets if you go out or are away from home. When you take powder mixed up with water, keep the first mouthful in your mouth and swill it around for a few seconds before swallowing. This will get the nystatin into the 'cracks and crevices'. You can gargle with it as well, especially if you have a sore throat, which may be due to Candida as well as a virus.

Fungilin (Amphotencin B)

This comes as lozenges, which are good to suck or chew to clear the fungus from the mouth and throat, but their dosage is too low to be effective in the gut. As 100 mg tablets, fungilin is taken in a dose of one or two tablets four times a day. Similar 'die-off' symptoms may occur as with nystatin, and mean the treatment needs to be continued. There does not seem to be any hard evidence on whether nystatin or fungilin work best, but fungilin is thought to penetrate the bowel wall more effectively. Both are well-tolerated, are not absorbed from the gut, and are effective against Candida. Fungilin is usually better tolerated than nystatin, however, as nystatin may cause side-effects such as nausea after a time.

Ketocomazole (Nizoml)

This antifungal drug is absorbed into the bloodstream, and is very effective. However it may cause liver damage, and patients require regular liver function tests while taking it.

Fluconazole (Diflucan)

This is a relatively new drug, and so far seems to be both effective and safe. However, it is expensive, and may not be easy to obtain in the UK on NHS prescription unless other antifungal drugs prove ineffective.

Some research of interest - in the USA, Dr Carol Jessop (University of California, 1990) monitored 1200 patients over five years for their response to antifungal ketoconazole treatment. The results 'suggest that colonization of yeast may play a role in aetiology of Chronic Fatigue Syndrome, and also suggests that patients may benefit from systemic anti-yeast therapy and a decrease of sugars in the diet.'

It was noted that 85 per cent of the patients in the trial had been treated with the antibiotic tetracycline for two or more years in the past.

Probiotics should be continued along with the antifungal drugs.

It may be necessary to treat Candida in various other situations with different methods. Nystatin and fungilin can be used as lozenges, to treat the mouth, throat and gullet; pessaries to treat vaginal infections; and creams for the skin.

If large doses by mouth are not clearing the mental and gut symptoms, it may be worth administering nystatin directly to the lower bowel via an enema, or even by using the pessaries as suppositories. This is best done by clearing the lower bowel with an ordinary enema, then giving a small retention enema of warm water containing ¼ teaspoon of nystatin powder, or a crushed tablet of fungilin or nystatin. This is not an easy task for someone who is ill and weak, so unless a nurse or a helper who is trained to give enemas is at hand, this idea may not be practical. Treatment of Candida may have to be continued for a year or more, and, according to progress, the antifungal agent can be cut down or stopped, and then the diet can be relaxed. However, vigilance needs to be maintained. Having got better, do not start having sugar, alcohol and cakes - you will certainly get the Candida back!

Colon Cleansing by Fibre

Some therapists advise adding special fibres, such as oat bran fibre or psyllium husks, to a diet high in vegetables. This helps remove old, sticky, putrefying matter from the lining of the colon. You must drink a lot of water if you take psyllium husks, however: otherwise there is a small risk of intestinal obstruction. A preparation of linseeds, e.g. Linusit, is safer than psyllium, and is recommended.

Colonic Washouts

Washing out the large bowel by a sort of high-level enema, using warm water, was fashionable at the beginning of this century. A few people who suffer from constipation, possibly Candida overgrowth, or possibly M.E., have reported an improvement in symptoms after a course of this treatment. However, there is no evidence to show that colonic irrigation produces any lasting benefit to M.E. patients; it may even be counter-productive, as the procedure washes out essential minerals, may damage the lining of the bowel, and can bring on a severe relapse. It is an expensive therapy, and is not recommended for people who are ill with M.E. Constipation should be treated by less drastic means, such as diet change, vitamin C, extra fibre, and mild aperients.

Capristatin

Some fatty acids have been shown to destroy fungi. One such is caprylic acid, which is derived from coconuts. It is effective if taken as a slow release preparation, called capristatin, which reaches the large bowel before it is absorbed. Capristatin may be very useful for anyone who cannot tolerate nystatin or fungilin, but is not obtainable on prescription.

Antifungal Foods

As previously mentioned, garlic, onion, and vegetables of the cabbage family (Brassicas) all have antifungal qualities due to the sulphur-containing chemicals in them. They should all be eaten liberally, as well as olive oil, for its oleic acid content.

Herbs

A tea made from a tree bark (Taheebo tree, also known as Pau d'Arco) has antifungal and immune system-enhancing effects.

Aloe Vera is a plant with antifungal properties. It is available in cream, ointment, or lotion for external use, and also as a preparation to drink.

Summary

If you decide to have a go at getting rid of Candida, you should first change your diet and take probiotics and nutritional supplements; then after a month or so consider having long-term anti-Candida therapy. Some people can control their Candida by diet and probiotics alone.

If you have a definite lessening of your symptoms, then do keep on with the programme for at least six months. If there is no improvement after two months on the diet and antifungals, then you can say you have given it a fair trial and leave it. Many people who maintain that treating Candida did not help them have not done the programme seriously and consistently.

Case History

The following story is typical of someone with a Candida illness:

Mrs C. A., aged 44 (20 at onset).

Mrs A. started her illness with a bad attack of flu when she was 20, then had two bad bouts of gastroenteritis. At the time, she suffered from a bad marriage and overwork, lived in a damp house, and had recently had a breast lump removed.

'After the illness started, in 1968, with a bad dose of flu, I had constant diarrhoea and a sore throat. My joints went haywire at the same time, I had pins and needles in my hands and feet, severe abdominal pain and wind, and was very tired. My personality changed, with a short temper and irritability. I felt awful most of the time. In 1969 we moved, and I found I was getting tonsillitis again and again. Because of family trouble I saw a psychiatrist. All the antibiotics I had gave me fungus in the mouth, so I was given nystatin to suck.

'I remember craving sweet things, perspiring a lot, and getting trembly if I didn't eat. I was drinking two litres of Coke a day!

'In 1972 we moved again. I worked full-time, still felt awful. My knees suddenly went, with dreadful pains. The hospital said it was probably 'arthritis caused by a virus'. I also had eczema (since three years before this). I became allergic to many things - all painkillers brought me out in big lumps, and I'd have difficulty breathing. Red wine made me short of breath, but it wasn't until 1985 that I found out all the foods I was allergic to.

'I am now getting better, but my symptoms were: dreadful fatigue; any exercise made me feel drunk, or would give me migraine and make me unable to walk straight (felt drunk) the next day; joint pains, muscle pains, PMT, blurred vision, feeling very cold, sweating, tinnitus, wind, bloating and diarrhoea, chest pains, difficulty breathing, and allergies. At present, improved, I can walk slowly for about half an hour, but feel whacked afterwards. If I rest before I have exhausted myself, I feel better and can avoid the headaches.

'I started to feel better seven or eight years ago. I had remarried to a good man and felt content. Then I tried to make myself fit - jogging, aerobics, tennis - I pushed myself, then started to go downhill. I also started a full-time degree course. After a year, the throat problems came back, then the chest infection, and after that back came the tiredness, joint pains, blurred vision, etc.

'I am now seeing a doctor at an Allergy Clinic. I am on a strict diet of vegetables. eggs, fish, meat, herb tea, garlic, onions, oils, and psyllium husks. I eat no fruit yet, also no dairy products. I take acidophilus and vitamins. I have had no sore throat for months, the eczema has gone, and there is general improvement. I rest as well'.

'As a child I had blood-poisoning several times from insect bites or little cuts.

'By age 19, I had had four pregnancies, developing an inflammation of the womb after the second of these, which caused me wind and bloating of the stomach from then on. I'd had athlete's foot all through childhood, lots of mouth ulcers, fungus disease of the skin when I was 16, and fungus infection in the stitches given me after my first baby was born.

'I used to eat yeast with sugar as a snack, also egg whipped up with sugar. I liked blue cheeses, pickles, and lot of Coke - my diet was very poor'.

Comment

All the signs of fungus infestation right from her teens, yet no doctor spotted it. This story shows that M.E. and Candida symptoms overlap. In her case, chronic yeast infection became much worse aged 20, following the virus infection. Is her diagnosis M.E., or chronic Candida? She probably has both.

She had a poor natural resistance to infection from childhood- the 'stage was set' to develop M.E. syndrome. Multiple allergies are frequently present with a yeast infection.

Suggested Further Reading

William G. Crook MD, *The Yeast Connection* (Future Health, 1984)

Leon Chaitow, *Candida Albicans* (Thorsons, 1991)