The Use of *Coriolus versicolor* Supplementation in Breast Cancer Patients-Case Study.

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Background: Immune enhancement properties of select plants and mushrooms have been studied by Japanese researchers in the 1960´s, with the majority of mycological research focused on extracts derived from both *Ganoderma lucidium* (reishi) and *Lentinula edodes* (shiitake).
In the late 1960´s, a hot water extract of *Lentinula edodes* (Berk) Sing. edible mushroom, completely inhibited the growth of sarcoma 180 implanted subcutaneously in ICR mice.
From the extract, Professor Goro Chihara isolated and purified a polysaccharide, which showed marked antitumour activity, and named the polysaccharide Lentinan (1). However, Lentinan was proven to be too toxic for long term clinical use (2).
It was the search for a mycological extract that had less toxicity and fewer side effects than Lentinan that led researchers at Kureha Chemical Industry Company to focus on the effectiveness of the oral administration of Polyporaceae (one of the Basidiomycetes) on stomach cancer patients.
Kureha screened over 200 species of the fruit bodies of the Basidiomycetes for their antitumor activity against various tumour cells, including sarcoma 180 and found several promising Polyporaceae strains (3). Among these strains *Coriolus versicolor* (Fr.) Quel (kawaratake), was considered to be the most suitable for further fractionation due to its high antitumour activity and stability during serial cultivation (4)
Extracts of cultured mycelia of *Coriolus versicolor* demonstrated antitumour activity comparable to that of the fruitbody. In 1971, the active principle was precipitated from extracts of cultured hyphae of Coriolus versicolor (Fr.) Quel (CM-101 strain) with saturated ammonium sulfate, desalted and named PSK or Krestin (5). PSK has been reported to induce host-mediated antitumor activity (6).

Aim of Study

To assess the efficacy of non-fractionalized *Coriolus versicolor* supplementation in supporting the immune system of patient diagnosed with breast cancer. The principal parameters being a set of (four) immune parameters taken at baseline, 50 days and 90 days after initiation of Coriolus supplementation.

Subject

Dr. I, aged 57, profession medical doctor. Diagnosed with breast cancer and began chemotherapy on April 18th, 2001. She underwent 12 sessions from July to September of 2001. Chemotherapy was then repeated from December 2001 to February 7th 2002 for pulmonary metastasis.

Supplementation Schedule

On January, 2002, non-fractionalized *Coriolus versicolor* supplementation was provided to support the immune system. Patient I began with 4.5 grams per day of non-extracted *Coriolus versicolor* for 30 days, followed by 3.0 grams per day for 20 days, followed by 4.5 grams per day for an additional 30 days.

Immune Parameter Recordings

	Patient Dr. I	**Jan**	**Mar**	**April**
	Testing Dates	1/7/2002	3/1/2002	4/11/2002
	Supplementation Period	Baseline	50 days after	90 days after
1	**Total Leukocyte Count**	1.63	4.07	6.39
	(x 10^6/ml)			
2	**% Linf**	58.5% (950/ul)	18.4% (748/ul)	17% (1086/ul)
3	**% linf CD3-CD56**	9% (85/ul)	17.3% (129/ul)	12.0% (130/ul)
4	**Proportion of NK cells (mature)/NK cells ++ (imature)**	92.4%/ 7.6%	90.8% /9.2%	59% /11.0%
5	**Supplementation Level**	9 tablets /day	6 tablets /day	9 tablets / day
	of Coriolus versicolor			
6	**Hemoglobin**			13.6
7	**Hematocrit**			39%

Observations:

After 50 days of Coriolus supplementation, Patient I felt better and physically looked better. After taking 90 days of Coriolus supplementation, Patient I was happy with progress and stopped iron supplementation during chemotherapy sessions.

Conclusion

While this is only one case, there is enough evidence to suggest a curiosity does exist and that further open label clinical development should be carried out to confirm the immune supportive function of *Coriolus versicolor* nutrition in patients diagnosed with breast cancer. In future studies, it is suggested that the Coriolus supplementation schedule be maintained at 4.5 grams per day.

Footnotes

(1) “Medical Aspects of Lentinan Isolated From *Lentinus Edodes* (Berk) Sing”-Goro Chihara, Biotechnology Research Centre, Teikyo University, Nogawa 907, Miyamae-ku, Kawasaki 213, Japan. Chapter 27-Mushroom Biology and

Mushroom Products-Preceedings of the Second International Conference-University Park, Pennsylvania June 9-12, 1996. Edited by D.J. Royce.

(2) Translation of “Cancer Immunotherapy 1977”-Takeo Mori, Tadaaki Sakai, Ichiji Itoh, Tokyo Metropolitan Komagome Hospital, Published by Life Science August 5th, 1977.

(3) “Diverse Biological Activity of PSK (Krestin), A Protein-Bound Polysaccharide from *Coriolus versicolor* (Fr.) Quel-Hiroshi Sakagami and MinoruTakeda-First Department of Biochemistry, School of Medicine, Showa University, 1-5-8 Hatanodai, Shinagawa-ku, Tokyo 142 Japan, Page 237 Chapter 25-Mushroom Biology and Mushroom Products-Proceedings of the Second International Conference-University Park, Pennsylvania June 9-12, 1996, Edited by D.J. Royce.

(4) Ibid Page 237
(5) Ibid Page 237
(6) Ibid Page 237

