Table II. Growth behaviour of 6 fungi in staled liquid culture filtrates (dry weight of hyphal mat in mg)[a]

Name of fungi	Control	*A. flavus*	*C. lunata*	*F. poae*	*P. rubrum*	*T. harzianum*	*S. rolfsii*	Mean growth in all filtrates
Aspergillus flavus	380	195.4	145.0	96.3	162.8	91.5	231.5	153.7
Curvularia lunata	298	62.5	173.0	109.3	71.6	52.2	102.8	95.2
Fusarium poae	270	78.9	106.4	170.6	88.9	70.0	142.4	109.5
Penicillium rubrum	320	139.5	141.6	143.0	200.5	89.3	213.0	154.5
Trichoderma harzianum	360	153.5	173.2	160.0	142.6	139.5	219.3	164.7
Sclerotium rolfsii	287	68.4	138.9	103.3	88.5	60.6	175.6	105.9
mean growth of all fungi	319	116.3	146.3	130.3	125.8	83.8	180.7	130.5[b]

[a] Average of 3 replicates. [b] Mean growth of all fungi in all filtrates

hyphal mat harvested, lower will be the toxic effect of filtrates. Growth-supporting values of *A. flavus* and *T. harzianum* were much less as compared to *C. lunata*, *F. poae*, *S. rolfsii* and *P. rubrum*. The growth-supporting values of *S. rolfsii* was very high in all cases showing the least toxicity of its culture filtrate. The comparative survival of *T. harzianum* was higher in all the fungal metabolites followed by *P. rubrum*, *A. flavus*, *F. poae*, *S. rolfsii* and *C. lunata*. DWIVEDI and GARRETT[2] reported that the growth-supporting values of different filtrates depended directly on the concentration of the residual nutrient unused by the filtrate-producing fungus, and inversely on the concentration of staled mycostatic products.

Nuclear Numbers in Encysted Dormant Embryos of Different *Artemia salina* Populations

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Summary. The number of nuclei in dormant cysts from world-wide populations of the brine shrimp, *Artemia salina* (L.) was determined. These nuclear numbers proved to be quite constant considering the diversity of geographical localities, ploidies, and modes of reproduction represented by these populations. We believe this constancy indicates a tight coupling between the development and dormancy of these embryos. Chromosome counts on *Artemia* from Jamnagar, India indicated this population to be triploid.

The brine shrimp *Artemia salina* (L.) is found in highly localized populations that are widely distributed around the world. Some of these populations differ in ploidy[2,3] as well as the amount of DNA per somatic cell[4]. As a normal part of its embryonic development this organism often produces encysted dormant embryos halted at the late blastula or early gastrula[5,6]. The encysted embryos, often called 'cysts', have been the object of an increasing number of studies in biochemistry and developmental biology, but little is known concerning the precise stage at which dormancy occurs, and the variation from population to population in this regard. Reasoning that the number of cells in the encysted dormant embryo should provide information on the foregoing considerations we made nuclear counts on cysts, from widely separated populations, and report the results here.

The cysts were treated with aniformin solution[7] to digest the outer shell (chorion), washed with saline, stained in acetic orcein or fixed in ethanol-acetic acid (3:1), run through the feulgen procedure, and squashed under a coverslip. The coverslip was sealed with 'Lubriseal' and the nuceli were counted at 320 × with the help of a lined grid. These nuclear counts presumably reflect the number of cells per cyst. Although some syncitial areas may exist[6] we have not seen them in electron photomicrographs[8].

The chromosome number for the Jamnagar (India) population has not been examined previously to our knowledge. We made this measurement on Feulgen stained squashes of nauplii at 1300×. 25 cells from 4 animals were measured and found to have a mean of 57 chromosomes. This was compared with measurements on cysts from the Great Salt Lake where 43 cells from 7 animals revealed a mean of 38 chromosomes. Although the data are not accurate enough for precise description of the Jamnagar population, it seems clear that the number is triploid with respect to the Great Salt Lake population. These findings are consistent with those of IWASAKI[9] who concluded that the Great Salt Lake population is diploid

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Number of nuclei per cyst in various populations of *Artemia salina* (L.)

Locality	Ploidy	Mode of reproduction [a]	Year of collection	No. of cysts	Mean number of nuclei	Standard deviation
San Francisco (USA)	2*N*	B	1938	10	3164	239
			1951	10	3462	182
			1961	10	3086	356
			1965	22	2959	469
			(not known)	60	4004	192
Great Salt Lake (USA)	2*N*	B	1951	10	3543	192
			1967	10	3900	150
Inagua (Bahamas)	2*N*	B	1969	3	3534	134
Aio-machi (Japan)	?	P	1968	9	3769	171
Jamnagar (India)	3*N*	P	1968	5	3221	156
Comacchio (Italy)	4*N*	P	1960	20	3468	209
Sete (France)	2*N*	P	1962	15	3415	243

[a] B, bisexual; P, parthenogenetic.

and not tetraploid as previously reported[2]. The diploid number for *Artemia* is accepted as 42[3].

The results of nuclear counts in various cysts populations are shown in the Table. The data on NAKANISHI et al.[5] have been recalculated from their original findings and are those listed in the last heading under 'San Francisco'. On the one hand these data indicate that, within a given population, dormancy is initiated at essentially the same developmental stage with respect to the number of nuclei present. Furthermore, the number of nuclei per cyst appears to be quite similar in populations separated by many thousands of miles, the implication being that the onset of dormancy is rather rigidly programmed into the development of this organism. Furthermore, significant gene flow between the bisexual populations seems unlikely with the possible exception of the Great Salt Lake and California populations. Of course, no genetic exchange takes place between the parthenogenetic ones. Thus, the relative constancy of nuclei at the time of embryonic dormancy is an event that appears to be acquired and maintained in each population independently of geographic and environmental conditions.

On the other hand there are statistically significant differences between some of these populations. The application of Student's *t*-test to the data shows that the populations can be separated at the 95% level of confidence into the following sequence: SF[4] = SL 67 > Aio-machi > SL 51 = Inaugua = Comacchio = SF 51 = Sete > Jamnagar = SF 38 = SF 61 = SF 65. However, the grouping in this sequence shows no overall correlation with the geographical origin, the mode of reproduction, or the ploidy of the populations.

Charakterisierung der Geisseln und des Flagellins von *Listeria monocytogenes*. I. Immunologische Untersuchungen

Characterization of Flagella and Flagellin of *Listeria monocytogenes*. I. Immunological Investigations

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Summary. It is possible to show only H-antibodies in a latex test with a purified flagella suspension of *Listeria monocytogenes*. An antigen community between *Staphylococcus aureus* and flagella of *Listeria* could be excluded.

Bakteriengeisseln bestehen aus einheitlichen globulären Untereinheiten, die als Flagellin bezeichnet werden und in regelmässiger Anordnung zum zylindrischen Filament aggregiert sind (SCHMITT[1]). Diese Aggregate können durch verschiedene Methoden (IINO[2]) aufgelöst werden. Es ist bisher nicht bekannt, wieweit Geisseln von *Listeria monocytogenes* und ihr Geisselmonomer – das Flagellin – immunologisch identisch sind. Das Flagellin lässt sich besser reinigen als intakte Geisseln. Mit dem gereinigten Flagellin können – bei bestehender serologischer Äquivalenz – hochspezifische Geissel-(H)-Hyperimmunseren hergestellt werden. Solche Seren sind zur Klärung der Antigengemeinschaft von *Listeria*-Geisseln mit anderen Erregern erforderlich. Serologische Kreuzreaktionen der somatischen (O)-Antigene von *L. monocytogenes* mit Staphylokokken oder Enterokokken sind hinreichend bekannt (SEELIGER[3], SACHSE und

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