



## Host diversity of genus *Phellinus* from world

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### ABSTRACT

*Phellinus* is a genus of fungi belonging to the family Hymenochaetaceae from order Aphyllophorales. *Phellinus* spp. causing white rot of various kinds in live standing or dead gymnospermic and angiospermic wood occurs worldwide. A total number of 427 records (310 species, 06 sub-species, 42 varieties and 69 formas) of *Phellinus* are reported worldwide so far. The current study was based on thorough world literature survey for the host range of *Phellinus* species. About 91 plant families shows infection of *Phellinus* spp. Amongst all the families, genera of Fabaceae are found to be most susceptible, followed by Rosaceae, Myrtaceae, Cupressaceae, Caesalpiniaceae, Ericaceae, Euphorbiaceae, Lauraceae, Meliaceae, Pinaceae, Rubiaceae, Arecaceae, Fagaceae and Oleaceae are also amongst the most frequently infected families. *Quercus* is the most frequent host of *Phellinus*.

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### Introduction

*Phellinus* is a member of family Hymenochaetaceae. The members of Hymenochaetaceae form a cosmopolitan group of wood inhibiting fungi, capable of utilizing components of wood cell walls for their growth and reproduction. Wood is composed of the structural polymer cellulose, lignin, and hemicellulose. However, there is considerable variation, which is particularly evident in the heartwood of living trees in which a wide array of non-structural extraneous materials are deposited, as the maturing cells die.

Species of *Phellinus* decay heartwood and causes root rot and cankers of live standing trees and destroy slash and other woody residues. Tree diseases have been generally referred to as negative influence in the forest environment. No other class of forest diseases cause more timber damage than root and heart decays. Species of *Phellinus* are probably responsible for more timber loss than any other genus of wood destroying fungi. (Larsen & Cobb-Pouille, 1971)

Species of *Phellinus* are parasitic, perthophytic and/or saprobic causing white rot that degrade both lignin and cellulose (Rabba 1994, Vaidya 1993, 1990, 1991). They dwell on a wide variety of angiosperms and/or gymnosperms (Wagner & Fischer 2002) causing heart rot disease in live standing trees.

Fruit bodies of *Phellinus* are pileate to resupinate, perennial, rarely annual, pileus dark brown to black in species with a crust, more rarely pale ochraceous, hirsute to glabrous, often sulcate now and then radially cracked in older fruit bodies, pores variable, but mostly small, tubes usually stratified, context thin and dense. Hyphal system dimitic, generative hyphae usually hyaline, thin-walled and narrow, more rarely wider and pale golden brown, setal hyphae, tramal setae or hymenial setae absent or present, spores of variable shapes, hyaline to rusty brown, thin-walled to thick-walled, mostly IKI negative, dextrinoid in a few species. All species are on dead wood. Cosmopolitan genus with numerous species, which in many groups can be difficult to separate. There is a problem when it comes to the colour of the spores. In some species they start as pale yellow, but with maturity they become more rusty brown,

this is especially distinct when section is taken in the outer part of the tubes and from the old and stuffed parts of the tubes. In the latter part, frequently the spores will be more thick walled, larger and more deeply coloured than in the former part. In other species, the coloration seems to be a rather specific character (Quelet, 1886).

### Observations and result

Table -1, Table -2 and Table -3 shows host range of *Phellinus* and family wise distribution of *Phellinus* respectively as noted from thorough literature survey.

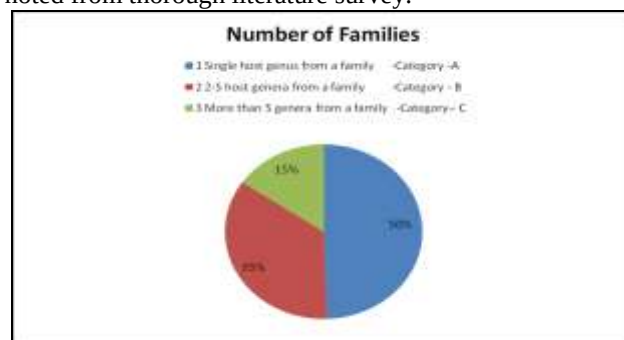


Fig .1.Host distribution percentage based on Table-5

### Discussion

It was clearly observed that *Phellinus* has a wide host range. The total 287 host genera are observed from world (Angiosperms and Gymnosperms). The dominating genera amongst the host diversity are *Quercus*, *Abies*, *Betula*, *Prunus*, *Pinus*, *Salix*, *Acacia*, *Alnus*, *Mangifera*, *Picea*, *Populus*, *Acer*, *Artocarpus*, *Larix*, *Albizia* and *Juglans* (Table -2).

Fabaceae has the maximum no. of genera (32) are infected by *Phellinus*, followed by Rosaceae (22), Myrtaceae (13), Cupressaceae (10), Caesalpiniaceae (8), Ericaceae (8), Euphorbiaceae (8), Lauraceae (8), Meliaceae (8), Pinaceae (7) and Rubiaceae (7) (Table -3).

It can be stated that dominant families infected by *Phellinus* seem to be Fabaceae, Rosaceae, Myrtaceae, Cupressaceae and Caesalpiniaceae (Table -3).

**Table- 1: Family wise distribution of *Phellinus* hosts and infection incidence. (Larsen & Cobb-Pouille 1971, Wagner & Fischer 2002)**

| Sr. No. | Family                                       | No. of Genera | Genera                                                                                                                                                   | Infection incidence                     |
|---------|----------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 1       | Adoxaceae                                    | 2             | <i>Sambucus</i><br><i>Viburnum</i>                                                                                                                       | 3<br>3                                  |
| 2       | Vitaceae                                     | 1             | <i>Vitis vinifera</i>                                                                                                                                    | 1                                       |
| 3       | Anacardiaceae                                | 5             | <i>Astronium</i><br><i>Mangifera</i><br><i>Pistacia</i><br><i>Rhus</i><br><i>Schinopsis</i>                                                              | 1<br>28<br>5<br>6<br>1                  |
| 4       | Antherospermataceae                          | 1             | <i>Laurelia</i>                                                                                                                                          | 1                                       |
| 5       | Apocynaceae                                  | 2             | <i>Carissa</i><br><i>Wrightia</i>                                                                                                                        | 1<br>2                                  |
| 6       | Araliaceae                                   | 1             | <i>Kalopanax</i>                                                                                                                                         | 1                                       |
| 7       | Arecaceae<br>(Calamoideae)<br>(Coryphoideae) | 6             | <i>Areca</i><br><i>Calamus</i><br><i>Caryota</i><br><i>Cocos</i><br><i>Elaeis</i><br><i>Phoenix</i>                                                      | 11<br>1<br>1<br>2<br>1<br>11            |
| 8       | Aquifoliaceae                                | 1             | <i>Ilex</i>                                                                                                                                              | 1                                       |
| 9       | Asparagaceae                                 | 1             | <i>Dracaena</i>                                                                                                                                          | 1                                       |
| 10      | Asteraceae                                   | 3             | <i>Baccharis</i><br><i>Cassinia</i><br><i>Olearia</i>                                                                                                    | 1<br>1<br>1                             |
| 11      | Avicenniaceae                                | 1             | <i>Avicinia</i>                                                                                                                                          | 2                                       |
| 12      | Berberidaceae                                | 1             | <i>Berberis</i>                                                                                                                                          | 1                                       |
| 13      | Betulaceae                                   | 5             | <i>Alnus</i><br><i>Betula</i><br><i>Carpinus</i><br><i>Corylus</i><br><i>Ostrya</i>                                                                      | 29<br>33<br>2<br>3<br>6                 |
| 14      | Bignoniaceae                                 | 3             | <i>Chilopsis</i><br><i>Heterophragma</i><br><i>Tabebuia</i>                                                                                              | 2<br>2<br>2                             |
| 15      | Bombacaceae                                  | 1             | <i>Eriodendron</i>                                                                                                                                       | 1                                       |
| 16      | Burseraceae                                  | 3             | <i>Bursera</i><br><i>Canarium</i><br><i>Garuga</i>                                                                                                       | 1<br>1<br>2                             |
| 17      | Buxaceae                                     | 1             | <i>Buxus</i>                                                                                                                                             | 1                                       |
| 18      | Cactaceae                                    | 3             | <i>Carnegiea</i><br><i>Cereus</i><br><i>Opuntia</i>                                                                                                      | 2<br>1<br>3                             |
| 19      | Caesalpiniaceae                              | 8             | <i>Bauhinia</i><br><i>Caesalpinia</i><br><i>Cassia</i><br><i>Delonix</i><br><i>Peltophorum</i><br><i>Poinciana</i><br><i>Saraca</i><br><i>Tamarindus</i> | 1<br>5<br>10<br>15<br>7<br>1<br>1<br>14 |
| 20      | Calophyllaceae                               | 1             | <i>Calophyllum</i>                                                                                                                                       | 1                                       |
| 21      | Cannabaceae                                  | 1             | <i>Celtis</i>                                                                                                                                            | 5                                       |
| 22      | Caprifoliaceae                               | 2             | <i>Lonicera</i><br><i>Symphoricarpos.</i>                                                                                                                | 5<br>1                                  |
| 23      | Carpodetaceae                                | 1             | <i>Carpodetus</i>                                                                                                                                        | 1                                       |
| 24      | Casuarinaceae                                | 1             | <i>Casuarina</i>                                                                                                                                         | 13                                      |
| 25      | Celastraceae                                 | 4             | <i>Canotia</i><br><i>Cassine</i><br><i>Elaeodendron</i><br><i>Euonymus</i>                                                                               | 2<br>2<br>1<br>3                        |
| 26      | Cistaceae                                    | 2             | <i>Cistus</i><br><br><i>Helianthemum</i>                                                                                                                 | 3<br><br>3                              |
| 27      | Clusiaceae                                   | 5             | <i>Allanblackia</i><br><i>Callophyllum</i><br><i>Clusia</i><br><i>Garcinea</i><br><i>Mesua</i>                                                           | 1<br>1<br>1<br>4<br>1                   |
| 28      | Combretaceae                                 | 3             | <i>Anogeissus</i><br><i>Lumnitzera</i><br><i>Terminalia</i>                                                                                              | 4<br>1<br>11                            |
| 29      | Coriariaceae                                 | 1             | <i>Cariaria</i>                                                                                                                                          | 2                                       |
| 30      | Cornaceae                                    | 1             | <i>Cornus</i>                                                                                                                                            | 13                                      |

|    |                                                   |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 |
|----|---------------------------------------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 31 | Corynocarpaceae                                   | 1  | <i>Corynocarpus</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1                                                                                                                                                                                               |
| 32 | Cunoniaceae                                       | 2  | <i>Weinmannia</i><br><i>Eucryphia</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7<br>1                                                                                                                                                                                          |
| 33 | Cupressaceae<br>(Cupressoideae)<br>(Sequoioideae) | 10 | <i>Austrocedrus</i><br><i>Calocedrus</i><br><i>Chamaecyparis</i><br><i>Cupressus</i><br><i>Cypresses</i><br><i>Juniperus</i><br><i>Libocedrus</i><br><i>Sequoia</i><br><i>Taxodium</i><br><i>Thuja</i>                                                                                                                                                                                                                                                                                                                                                                                                                              | 1<br>1<br>6<br>3<br>1<br>5<br>4<br>1<br>2<br>15                                                                                                                                                 |
| 34 | Dilleniaceae                                      | 1  | <i>Dillenia</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1                                                                                                                                                                                               |
| 35 | Dipterocarpaceae                                  | 4  | <i>Balanocarpus</i><br><i>Dipterocarpus</i><br><i>Hopea</i><br><i>Shorea</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1<br>1<br>1<br>8                                                                                                                                                                                |
| 36 | Ebenaceae                                         | 1  | <i>Diospyros</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1                                                                                                                                                                                               |
| 37 | Elaeagnaceae                                      | 2  | <i>Eleagnus</i><br><i>Hippophae</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1<br>1                                                                                                                                                                                          |
| 38 | Elaeocarpaceae                                    | 1  | <i>Aristotelia</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                                                                                                                               |
| 39 | Ephedraceae                                       | 1  | <i>Ephedra</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2                                                                                                                                                                                               |
| 40 | Ericaceae                                         | 8  | <i>Arbutus</i><br><i>Arctostaphylos</i><br><i>Calluna</i><br><i>Erica</i><br><i>Gaultheria</i><br><i>Lyonia</i><br><i>Rhododendron</i><br><i>Vaccinium</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 12<br>4<br>1<br>3<br>1<br>1<br>3<br>2                                                                                                                                                           |
| 41 | Euphorbiaceae                                     | 8  | <i>Aleurites</i><br><i>Bridelia</i><br><i>Dimorphocalyx</i><br><i>Drypetus</i><br><i>Euphorbia</i><br><i>Hevea</i><br><i>Macaranga</i><br><i>Mallotus</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1<br>2<br>2<br>1<br>1<br>2<br>1<br>5                                                                                                                                                            |
| 42 | Fabaceae                                          | 32 | <i>Acacia</i><br><i>Albizia</i><br><i>Butea</i><br><i>Caragana</i><br><i>Cassia</i><br><i>Ceasalpinia</i><br><i>Ceasalpinia</i><br><i>Ceratonia</i><br><i>Cercidium</i><br><i>Cercis</i><br><i>Cytisus</i><br><i>Dalbergia</i><br><i>Derris</i><br><i>Desmodium</i><br><i>Dialium</i><br><i>Dorycnium</i><br><i>Erythrina</i><br><i>Erythrophleum</i><br><i>Gleditsia</i><br><i>Gliricidia</i><br><i>Olneya</i><br><i>Pericopsis</i><br><i>Piptadenia</i><br><i>Pithecolobium</i><br><i>Pongamia</i><br><i>Prosopis</i><br><i>Pterocarpus</i><br><i>Robinia</i><br><i>Robinia</i><br><i>Spartium</i><br><i>Ulex</i><br><i>Xylia</i> | 30<br>21<br>2<br>1<br>1<br>1<br>1<br>3<br>2<br>3<br>1<br>15<br>4<br>2<br>1<br>1<br>1<br>2<br>3<br>15<br>2<br>2<br>1<br>1<br>1<br>4<br>2<br>1<br>1<br>3<br>4<br>14<br>2<br>9<br>6<br>3<br>4<br>1 |
| 43 | Fagaceae                                          | 6  | <i>Castanea</i><br><i>Castanopsis</i><br><i>Cyclobalanopsis</i><br><i>Fagus</i><br><i>Lithocarpus</i><br><i>Quercus</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5<br>6<br>1<br>8<br>2<br>57                                                                                                                                                                     |
| 44 | Fouquieriaceae                                    | 1  | <i>Fouquieria</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2                                                                                                                                                                                               |
| 45 | Grossulariaceae                                   | 1  | <i>Ribes</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1                                                                                                                                                                                               |
| 46 | Hamamelidaceae                                    | 1  | <i>Parrotia</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3                                                                                                                                                                                               |
| 47 | Hydrangeaceae                                     | 1  | <i>Viburnum</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2                                                                                                                                                                                               |

|    |                           |    |                                                                                                                                                                                                                                                                      |                                                                |
|----|---------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 48 | Juglandaceae              | 2  | <i>Carya ovate</i><br><i>Juglans</i>                                                                                                                                                                                                                                 | 1<br>19                                                        |
| 49 | Lamiaceae                 | 1  | <i>Vitex</i>                                                                                                                                                                                                                                                         | 2                                                              |
| 50 | Lauraceae                 | 8  | <i>Actinodaphne</i><br><i>Alseodaphne</i><br><i>Beilschmiedia</i><br><i>Cinnamomum</i><br><i>Laurus</i><br><i>Ocotea</i><br><i>Persea</i><br><i>Umbellularia</i>                                                                                                     | 3<br>1<br>7<br>4<br>3<br>2<br>2<br>2                           |
| 51 | Lecythidiaceae            | 1  | <i>Mammea</i>                                                                                                                                                                                                                                                        | 2                                                              |
| 52 | Lythraceae                | 2  | <i>Lagerstroemia</i><br><i>Punica</i>                                                                                                                                                                                                                                | 3<br>3                                                         |
| 53 | Magnoliaceae              | 2  | <i>Liriodendron</i><br><i>Talauma</i>                                                                                                                                                                                                                                | 1<br>1                                                         |
| 54 | Malvaceae<br>(Tilioideae) | 2  | <i>Thespesia</i><br><i>Tilia</i>                                                                                                                                                                                                                                     | 5<br>3                                                         |
| 55 | Marattiaceae              | 1  | <i>Danaea</i>                                                                                                                                                                                                                                                        | 1                                                              |
| 56 | Melastomataceae           | 1  | <i>Memecylon</i>                                                                                                                                                                                                                                                     | 8                                                              |
| 57 | Meliaceae                 | 8  | <i>Aglaiia</i><br><i>Azadirachta</i><br><i>Chukrasia</i><br><i>Carapa</i><br><i>Dysoxylum</i><br><i>Melia</i><br><i>Swietenia</i><br><i>Toona</i>                                                                                                                    | 1<br>7<br>12<br>1<br>3<br>1<br>1<br>11                         |
| 58 | Menispermaceae            | 1  | <i>Cocculus</i>                                                                                                                                                                                                                                                      | 2                                                              |
| 59 | Moraceae                  | 5  | <i>Artocarpus</i><br><i>Broussonetia</i><br><i>Ficus</i><br><br><i>Maclura</i><br><br><i>Morus</i>                                                                                                                                                                   | 22<br><br>2<br>9<br>1<br>7                                     |
| 60 | Myricaceae                | 1  | <i>Myrica</i>                                                                                                                                                                                                                                                        | 1                                                              |
| 61 | Myrtaceae                 | 13 | <i>Blepharocalyx</i><br><i>Caryophyllus</i><br><i>Eucalyptus</i><br><i>Eugenia</i><br><i>Kunzea</i><br><i>Melaleuca</i><br><i>Metrosideros</i><br><i>Myrceugenella</i><br><i>Myrtus</i><br><i>Psidium</i><br><i>Rhodamnia</i><br><i>Syzygium</i><br><i>Tristania</i> | 1<br>1<br>10<br>6<br>1<br>3<br>2<br>1<br>3<br>1<br>1<br>7<br>2 |
| 62 | Nothofagaceae             | 1  | <i>Nothofagus</i>                                                                                                                                                                                                                                                    | 4                                                              |
| 63 | Olacaceae                 | 1  | <i>Scorodocarpus</i>                                                                                                                                                                                                                                                 | 2                                                              |
| 64 | Oleaceae                  | 6  | <i>Chionanthus</i><br><i>Fraxinus</i><br><i>Nestegis</i><br><i>Olea</i><br><i>Phillyrea</i><br><i>Syringa</i>                                                                                                                                                        | 1<br>18<br>1<br>7<br>3<br>5                                    |
| 65 | Pinaceae                  | 7  | <i>Abies</i><br><i>Cedrus</i><br><i>Larix</i><br><i>Picea</i><br><i>Pinus</i><br><i>Pseudotsuga</i><br><i>Tsuga</i>                                                                                                                                                  | 37<br>6<br>22<br>28<br>31<br>18<br>16                          |
| 66 | Pittosporaceae            | 1  | <i>Pittosporum</i>                                                                                                                                                                                                                                                   | 4                                                              |
| 67 | Platanaceae               | 1  | <i>Platanus</i>                                                                                                                                                                                                                                                      | 10                                                             |
| 68 | Poaceae                   | 1  | <i>Bambusa</i>                                                                                                                                                                                                                                                       | 8                                                              |
| 69 | Podocarpaceae             | 4  | <i>Dacrydium</i><br><i>Phyllocladus</i><br><i>Podocarpus</i><br><i>Saxegothaea</i>                                                                                                                                                                                   | 1<br>2<br>5<br>1                                               |
| 70 | Polygonaceae              | 2  | <i>Calligonum</i><br><i>Coccoloba</i>                                                                                                                                                                                                                                | 1<br>1                                                         |
| 71 | Proteaceae                | 3  | <i>Cardwellia</i><br><i>Embothrium</i><br><i>Grevillea</i>                                                                                                                                                                                                           | 1<br><br>4                                                     |
| 72 | Rhamnaceae                | 1  | <i>Rhamnus</i>                                                                                                                                                                                                                                                       | 8                                                              |
| 73 | Rhizophoraceae            | 2  | <i>Bruguiera</i><br><i>Rhizophora</i>                                                                                                                                                                                                                                | 1<br>3                                                         |

|    |                |    |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                              |
|----|----------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 74 | Rosaceae       | 22 | <i>Adenostoma</i><br><i>Amelanchier</i><br><i>Cerasus</i><br><i>Cercocarpus</i><br><i>Cotoneaster</i><br><i>Cowania</i><br><i>Crataegus</i><br><i>Cydonia</i><br><i>Holodiscus</i><br><i>Malus</i><br><i>Physocarpus</i><br><i>Polylepis</i><br><i>Prunus</i><br><i>Pyrus</i><br><i>Raphiolepis</i><br><i>Rosa</i><br><i>Rubus</i><br><i>Sorbus</i><br><i>Sorbus</i><br><i>Spirea</i><br><i>Stuhlmannii</i><br><i>Vauquelinia</i> | 1<br>1<br>1<br>3<br>1<br>2<br>7<br>3<br>1<br>8<br>1<br>2<br>32<br>13<br>1<br>4<br>1<br>1<br>1<br>1<br>1<br>2 |
| 75 | Rubiaceae      | 7  | <i>Anthocephalus</i><br><i>Cinchona</i><br><i>Coffea</i><br><i>Mitragyna</i><br><i>Pavetta</i><br><i>Psychotria</i><br><i>Timonius</i>                                                                                                                                                                                                                                                                                            | 2<br>2<br>3<br>1<br>2<br>1<br>1                                                                              |
| 76 | Rutaceae       | 2  | <i>Citrus</i><br><i>Glycosmis</i>                                                                                                                                                                                                                                                                                                                                                                                                 | 5<br>1                                                                                                       |
| 77 | Salicaceae     | 2  | <i>Populus</i><br><i>Salix</i>                                                                                                                                                                                                                                                                                                                                                                                                    | 28<br>31                                                                                                     |
| 78 | Salvadoraceae  | 1  | <i>Salvadora</i>                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                                            |
| 79 | Schisandraceae | 1  | <i>Illicium</i>                                                                                                                                                                                                                                                                                                                                                                                                                   | 1                                                                                                            |
| 80 | Sapindaceae    | 5  | <i>Acer</i><br><i>Allophylus</i><br><i>Aesculus</i><br><i>Dodonaea</i><br><i>Schleichera</i>                                                                                                                                                                                                                                                                                                                                      | 24<br>1<br>4<br>1<br>2                                                                                       |
| 81 | Sapotaceae     | 2  | <i>Mimusops</i><br><i>Xantolis</i>                                                                                                                                                                                                                                                                                                                                                                                                | 2<br>1                                                                                                       |
| 82 | Sterculiaceae  | 2  | <i>Pterospermum</i><br><i>Sterculia</i>                                                                                                                                                                                                                                                                                                                                                                                           | 1<br>1                                                                                                       |
| 83 | Symplocaceae   | 1  | <i>Symplocos</i>                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                                            |
| 84 | Taxaceae       | 1  | <i>Taxus</i>                                                                                                                                                                                                                                                                                                                                                                                                                      | 6                                                                                                            |
| 85 | Theaceae       | 3  | <i>Camellia</i><br><i>Schima</i><br><i>Thea</i>                                                                                                                                                                                                                                                                                                                                                                                   | 2<br>2<br>1                                                                                                  |
| 86 | Tiliaceae      | 1  | <i>Grewia</i>                                                                                                                                                                                                                                                                                                                                                                                                                     | 2                                                                                                            |
| 87 | Ulmaceae       | 3  | <i>Hemiptelia</i><br><i>Ulmus</i><br><i>Zelkova</i>                                                                                                                                                                                                                                                                                                                                                                               | 1<br>9<br>1                                                                                                  |
| 88 | Urticaceae     | 1  | <i>Cecropia</i>                                                                                                                                                                                                                                                                                                                                                                                                                   | 1                                                                                                            |
| 89 | Verbenaceae    | 1  | <i>Tectona</i>                                                                                                                                                                                                                                                                                                                                                                                                                    | 5                                                                                                            |
| 90 | Vitaceae       | 1  | <i>Vitis</i>                                                                                                                                                                                                                                                                                                                                                                                                                      | 4                                                                                                            |
| 91 | Zygophyllaceae | 1  | <i>Larrea</i>                                                                                                                                                                                                                                                                                                                                                                                                                     | 2                                                                                                            |
| 92 | Unknown host   | -  | -                                                                                                                                                                                                                                                                                                                                                                                                                                 | 275                                                                                                          |

Table -2: Dominantly infected genera amongst the host diversity of *Phellinus*

| Family           | Genus             | Total infection incidence of Genus |
|------------------|-------------------|------------------------------------|
| 1. Fagaceae      | <i>Quercus</i>    | 57                                 |
| 2. Pinaceae      | <i>Abies</i>      | 37                                 |
| 3. Betulaceae    | <i>Betula</i>     | 33                                 |
| 4. Rosaceae      | <i>Prunus</i>     | 32                                 |
| 5. Pinaceae      | <i>Pinus</i>      | 31                                 |
| 6. Salicaceae    | <i>Salix</i>      | 31                                 |
| 7. Fabaceae      | <i>Acacia</i>     | 30                                 |
| 8. Betulaceae    | <i>Alnus</i>      | 29                                 |
| 9. Anacardiaceae | <i>Mangifera</i>  | 28                                 |
| 10. Pinaceae     | <i>Picea</i>      | 28                                 |
| 11. Salicaceae   | <i>Populus</i>    | 28                                 |
| 12. Sapindaceae  | <i>Acer</i>       | 24                                 |
| 13. Moraceae     | <i>Artocarpus</i> | 22                                 |
| 14. Pinaceae     | <i>Larix</i>      | 22                                 |
| 15. Fabaceae     | <i>Albizia</i>    | 21                                 |

**Table -3: Family wise dominance in susceptibility to the disease**

| Family             | Total infected genera |
|--------------------|-----------------------|
| 1. Fabaceae        | 32                    |
| 2. Rosaceae        | 22                    |
| 3. Myrtaceae       | 13                    |
| 4. Cupressaceae    | 10                    |
| 5. Caesalpiniaceae | 8                     |
| 6. Ericaceae       | 8                     |
| 7. Euphorbiaceae   | 8                     |
| 8. Lauraceae       | 8                     |
| 9. Meliaceae       | 8                     |
| 10. Pinaceae       | 7                     |
| 11. Rubiaceae      | 7                     |

**Table-4: Family wise Dominant infection incidence**

| Family             | Total infection Incidence |
|--------------------|---------------------------|
| 1. Fabaceae        | 159                       |
| 2. Pinaceae        | 158                       |
| 3. Rosaceae        | 88                        |
| 4. Fagaceae        | 79                        |
| 5. Betulaceae      | 73                        |
| 6. Salicaceae      | 59                        |
| 7. Caesalpiniaceae | 54                        |
| 8. Anacardiaceae   | 41                        |
| 9. Moraceae        | 41                        |
| 10. Cupressaceae   | 39                        |
| 11. Myrtaceae      | 39                        |

**Table- 5: Categories of plants infected by *Phellinus***

| Category                                         | Number of Families | Host Distribution (%) |
|--------------------------------------------------|--------------------|-----------------------|
| 1. Single host genus from a family -Category -A  | 45                 | 49.45                 |
| 2. 2-5 host genera from a family -Category - B   | 32                 | 35.16                 |
| 3. More than 5 genera from a family -Category- C | 14                 | 15.38                 |

The host plants were categorised into three groups, single host genus from a family- Category-(A), two to five host genera from a family Category- (B) and more than five genera from a family Category- (C) (Table -5). 49.45% of infection within families is that from Category-A, Category-B show 35.16% infection and Category-C show 15.38% infection respectively (Fig. 1).

As far as host species range of *Phellinus* from India is concerned, the most frequently attacked host is *Mangifera* following *Acacia*, *Artocarpus* and *Albizia*.

The outcome of this survey could be helpful in forest pathology and medicinal research point of view in future.

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