

<p>Growing microbes in the lab</p>	<p>To study microbes it is essential to culture them, to do that we need to provide them with their required nutritional and environmental requirements. This is a critical hurdle and can be difficult especially with fastidious bacteria, especially environmental ones such as Legionella. Therefore, there requirements need to be mimicked in the laboratory.</p> <p>The sources of media possibly needed are carbon, glucose (or other easily utilised carbohydrates) or peptones as the source of energy and carbon. Nitrogen could be needed such as the proteolytic digests of more complex proteins such as peptones. Inorganic elements such as phosphates and sulphates, these are not usually added as they are normally present as contaminants in the media at adequate levels or microbial growth. Growth factors if they are fastidious, such as blood, serum and vitamins.</p> <p>Some media could also use buffering agents such as soluble phosphates that can be used to counteract change in pH. Indicators used to sense that pH change and selective agents such as antibiotics to suppress or kill off other microbes present to allow only the resistant to live.</p>
<p>Types of media</p>	<p>There are many different types of culture media that have a different physical nature such as liquid or solid composition. There may also be a difference in chemical composition such as complex media which is the most common type used, not very defined and they are largely similar can have small variances. There is also defined media which are used for specific purposes such as enzyme metabolism as we know exactly what we are placing in them.</p> <p>Their function can also differ, that is in the ability of the microbe to synthesise their own growth requirement.</p> <p>Basal media usually a complex media, has the general-purpose base media for growing non-fastidious microbes, as they can usually synthesis growth factors.</p> <p>Enriched media allow for the growth of more fastidious bacteria as they can't synthesise growth factors alone. Typically start with basal then add some of the growth factors such as blood or serum.</p> <p>Selective media encourage the growth of specific microbes that may suppress the growth of others. Whereas indicator/ differential media contain a component that causes an observable change when the microbe grows such as colour, may have been due to the inclusion of a pH indicator.</p>
<p>Nutrient Agar</p>	<p>It is a general purpose basal and complex media. It used to culture and store non-fastidious bacteria and can be used as a base medium for other more specialised media such as enriched medias like Horse Blood Agar or Chocolate Agar. In its liquid form when made without agar it is called nutrient broth.</p>
<p>Horse Blood Agar</p>	<p>This is an enriched medium, and has growth factors added to the basal media that is 5% blood after sterile NA cooled to 50 degrees. Used for fastidious bacteria, and further contains indicators for haemolysis. This is placed in the blood after cooled in case there is a denature or lysis of the</p>