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The Ultimate Biological Weapon of Mass Destruction.

This article is fictional and makes nothing more than entertaining reading. The reality of this weapon (coming from deep within the realms of my imagination) is unfeasible other than to the most advanced technology nations. Never the less it sounds scary. I have included this biological weapon of mass destruction in the book “*DNA Armageddon*”.

While enjoying the happy powder one night back in 2005 the subject of a biological warfare Armageddon was discussed. The question being (and one purely intended for entertainment) “*What is the nastiest and most destructive biological weapon that could be realistically invented within the next decade*”. It seems a weird subject to discuss, but not when considering that our group of happy powder ingesting individuals was made up of microbiologists and biochemists. Well, I am either ashamed or honored to say (not sure which), that I won the competition that night and was rewarded with another line of happy powder for my efforts.

On considering the question it would be wise to first consider which living substance humans are exposed to on a daily basis in large enough quantities to act as a vehicle (vector) for a deadly virus, bacteria or toxin. Well, there are a great many of vectors that could be utilized, but there is one in particular that has bothered my health since childhood in England’s “green and pleasant land”, and that is wind carried grass pollen. The sheer difficulty of keeping grass pollen out of one’s system indicates that if utilized as a vector for a toxin or made toxic in its own right then it would indeed be very effective as a biological weapon of mass destruction. If pollen can be altered to be toxic then what damage could be inflicted on a nation if large swathes of grassland were blowing toxic pollen clouds. The short answer is simple and can be summed up by one word “*apocalyptic*”.

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So what substance could those little microscopic pollen grains conceivably carry that was small enough to allow the pollen to drift in the wind but large enough to kill masses of humans. Well, there is one particular toxin that springs to mind and that is Botulism.

One gram of purified Botulism toxin when skillfully applied could theoretically kill a million people. Now imagine a field of grass; such as in any major park in any major city and also imagine that all of those plants contained an inserted botulism gene into their DNA; the inserted gene coding for the production of more than 1 mg quantities of botulism per plant. The pollen of these plants when breathed in would create the symptoms of double vision, muscle weakness, vomiting, and certain death through paralysis and respiratory failure. Botulism is dangerous not only because of its hyper toxicity, but because symptoms are delayed with most people not realizing they are infected before it is too late. In fact depending on the dosage, symptoms may take from two to as many as fourteen days before they are detected. Even those with the duldest of imaginations could imagine what would happen to a major suburban center in that situation. Indeed the pollen could spread so far and wide that eventually all the grass plants of an entire state or nation may become contaminated with the botulism gene!

So let's get back to reality now and ask "*Is this really feasible?*" Well technically yes as if we consider that the pollen grain of many grass plants are some of the largest at 20 to 100 μm then it is not too hard to imagine grass plants being engineered to express Botulism toxin in their pollen grains, or at least areas of the plant near to the pollen grains thus contaminating the pollen grains with botulism. If we consider that 0.03 μg of the toxin is deadly enough to kill a large adult human and grass pollen is approximately 2 to 100 μg in weight then we have a horrifying possibility. Bearing in mind that an average plant releases tens of thousands of pollen grains then an attack of this nature would create mayhem and panic, with many dying from allergic reactions *alone*. This would be especially deadly when large human population centers are located near grasslands or city parks.

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However the level of sophistication to carry out this kind of evil feat is thankfully well beyond the level of terrorists and “rogue states”. The only entities capable of carrying this out would be highly advanced nations and there is no incentive for them to do so, as the genetic pollution caused by an attack of this form on an enemy could be turned around and used on the aggressor. Indeed the very Armageddon like qualities of a toxic pollen cloud attack prevents its use as a weapon. Never the less it makes entertaining reading and no doubt would be the making of a good movie. Don't have nightmares. Now have a good day!

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